The management of lower rectal cancer is still controversial. A multidisciplinary approach is recommended. There are a lot of surgical techniques for lower rectal cancer (abdominopерineal rectal resection, nerve sparing technique, total mesorectal excision, intersphincteric total proctectomy, trans-anal anastomosis etc.). In this paper it is presented the intersphincteric total proctectomy. The key points for sphincter preservation surgery are: a good knowledge of anal function pathophysiology, 2 cm distal adequate margin (or 1 cm for neo-adjuvant treated patients), total mesorectal excision, colo-anal anastomosis, nerve sparing proctectomy. The colo-anal anastomosis is the last step of the intersphincteric total proctectomy. Neo-adjuvant therapy is also indicated. The selection criteria and the technique of intersphincteric total proctectomy is presented. Between 1987-2002 this procedure was made at 120 patients with lower rectal cancer. The postoperative specific complications were: pelvic peritonitis (n=1) and anal stenosis (n=4). No anastomotic leak was encountered. 9 patients were classified in stage 0, 48 in stage I, 26 in stage II and 37 in stage III (UICC classification). The 5 years survival rate was 97.4% for stages 0 and I, 71.3% for stages II and III. The functional results revealed a good continence in 77.5%, incontinence of liquid stools in 12.5%, incontinence for flatus in 7.5%, local recurrence in 2.5% and sexual or urological dysfunction in 5%. Conclusions: Preoperative radiotherapy and sphincter preservation surgery (intersphincteric proctectomy) provide good control of distal rectal cancer. Combined radiotherapy and chemotherapy seems to improve oncologic results with minimal additional morbidity. Our 6-8 week post-radiotherapy interval maximizes tumor shrinkage reducing the risks of radiation-induced complications. Intersphincteric proctectomy according to our experience reduces post-operative complications and risk of local recurrences. Use of diverting ileostomy/colostomy is mandatory in cases of colo-anal anastomosis. The quality of life is well accepted by the pts.
**Factors of Success or Failure of Colo-Anal Anastomosis**

**Rectal Cancer Management**

Key Points for Sphincter Preservation Surgery

1. Better knowledge of anal function pathophysiology
2. 2 cm distal margin adequate (1 - 2 cm, neo-adjuvant treated pts.)
3. Total mesorectal excision (TME)
4. Colo-anal Anastomosis (Straight vs. Pouch)
5. Nerve sparing proctectomy

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**Factors of Success or Failure of Colo-Anal Anastomosis**

**COLO-ANAL ANASTOMOSIS (C.A.A.)**

The C.A.A. is the final surgical step of the inter-sphincteric total proctectomy for sphincter-preserving technique in the treatment of low rectal cancer (3 - 1 cm).

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**Factors of Success or Failure of Colo-Anal Anastomosis**

**Pts Selection Criteria**

- Pre-op assessment-evaluation
  - Pts. motivation (psychiatrist)
  - Diagnostic examination
  - Digital exploration
  - Intra-rectal US
  - Anal/rectal manometry
  - Defecography
  - TC-MRI
  - Neo-adjuvant therapy evaluation (down-staging)

- Surgical technique
  - Trans-anal, trans-abdominal
  - Intersphincteric proctectomy (residual internal sphincter ring)
  - Nerve sparing technique
  - T.M.E.
  - Hand sewn Colo-anal Anastomosis (Stapler?)
  - Ileostomy

- Complications
- Death rates
- Survival
- Quality of life (QoL)

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**Factors of Success or Failure of Colo-Anal Anastomosis**

**COLO-ANAL ANASTOMOSIS (C.A.A.)**

**Pts Selection Criteria**

Diagnostic Examination

- Digital exploration
- Intra-rectal US
- Anal/rectal manometry
- Defecography
- TC-MRI
- Neo-adjuvant therapy evaluation (down-staging)

---

**Factors of Success or Failure of Colo-Anal Anastomosis**

**COLO-ANAL ANASTOMOSIS (C.A.A.)**

**Pts Selection Criteria**

Diagnostic Examination

- Pre-op evaluation
- Digital exploration
- Intra-rectal US
- Anal/rectal manometry
- Defecography
- TC-MRI
- Neo-adjuvant therapy evaluation (down-staging)
FACTORS OF SUCCESS OR FAILURE OF COLO-ANAL ANASTOMOSIS

COLO-ANAL ANASTOMOSIS (C.A.A.)
Pts SELECTION CRITERIA
DIAGNOSTIC EXAMINATION

DEFECOGRAPHY

TC - MRI

FACTORS OF SUCCESS OR FAILURE OF COLO-ANAL ANASTOMOSIS

NEOADJUVANT THERAPY EVALUATION (DOWN-STAGING)
1984 - 1992: XRT
1992 - 2002: XRT + CHT

STAGING
XRT
RE-STAGING
SURGERY

4,500 cGy

FACTORS OF SUCCESS OR FAILURE OF COLO-ANAL ANASTOMOSIS

DONWSTAGING

LOW DOSE CONTINUOUS INFUSION
BOOST (1080 cGy)
THE SHORT INTERVAL BEFORE SURGERY DOES NOT PRODUCE ADEQUATE DOWNSTAGING. CONSEQUENTLY, THIS PROTOCOL CAN BE OFFERED, FOR NOW, TO THE ADVANCED, MORE PROXIMAL RECTAL CANCERS (INTRAPERITONEAL) WHICH ARE CANDIDATED TO RADICAL CONSERVATIVE SURGERY, WITH THE AIM OF REDUCING THE RISKS OF LOCAL RECURRENCE.

FACTORS OF SUCCESS OR FAILURE OF COLO-ANAL ANASTOMOSIS

**SHORT TERM PREOPERATIVE RADIOTHERAPY**

INTRAPERITONEAL NON-RESECTABLE OR T₄ CANCERS (AT PRE-OPERATIVE IMAGING STUDY) SHOULD BE TREATED WITH THE USUAL 5-WEEK PROTOCOL.

**COLO-ANAL ANASTOMOSIS (C.A.A.)**

**Pts SELECTION CRITERIA**

SURGICAL TECHNIQUE

- TRANS-ANAL: TRANS-ABDOMINAL
- INTERSPHINCTERIC PROCTECTOMY (RESECTAL INTERNAL SPHINCTER RING)
- NERVE SPARING TECHNIQUE
- T.M.E.
- HAND SEWN COLO-ANAL ANASTOMOSIS
- ILEOSTOMY

**LEVEL OF DISTAL EXCISION**

Surgical Techniques

- LOW ANTERIOR RESECTION
- SUPER-ANAL ANASTOMOSIS
- COLO-ANAL ANASTOMOSIS
- INTERSPHINCTERIC PROCTECTOMY
FACTORS OF SUCCESS OR FAILURE OF COLO-ANAL ANASTOMOSIS

LEVEL OF DISTAL EXCISION

LOW ANTERIOR RESSECTION
INTERSPHINCTERIC PROCTECTOMY
BACON’S INTERSPHINCTERIC AND PROCTECTOMY

OUR TECHNIQUE

* RESIDUAL INTERNAL SPHINCTER RING

FACTORS OF SUCCESS OR FAILURE OF COLO-ANAL ANASTOMOSIS

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FACTORS OF SUCCESS OR FAILURE OF COLO-ANAL ANASTOMOSIS

RECTAL CANCER
1987 - 2002: OUR EXPERIENCE (296 PTS)
LEVEL OF DISTAL MARGIN

128 Pts
168 Pts*

2.5 - 3 cm

* WITH NEOADJUVANT THERAPY

SURGERY OF RECTAL CANCER TODAY

Straight J-Pouch Coloplasty
FACTORS OF SUCCESS OR FAILURE OF COLO-ANAL ANASTOMOSIS

RECTAL CANCER 1987 - 2002: OUR EXPERIENCE (296 PTS)

- PROXIMAL RECTAL CA. 128 (43.5%)
- DISTAL RECTAL CA. 168 (56.5%)

DISTAL RECTAL CANCER (168 PTS)

- INTERSPHINCTERIC PROCTECTOMY AND COLO-ANAL ANASTOMOSIS 120 (71.5%)
- LOCAL EXCISION 30 (17.5%)
- MILES 18 (11%)

1987 - 2002: PROXIMAL RECTAL CANCER (128 PTS)

- ANTERIOR RESECTION AND SUPRA-ANAL ANASTOMOSIS 102 (80.5%)
- LOCAL EXCISION 21 (16.5%)
- MILES 5 (3%)

COLO-ANAL ANASTOMOSIS (C.A.A.)

COMPlications

- GENERIC
- SPECIFIC
  - ANASTOMOSIS
  - FUNCTION
  - CONTROL OF DISEASE

COLO-ANAL VS COLO-RECTAL

- LENGTH OF OPERATION (mean) 195' vs 135' p<0.01
- BLOOD LOSS 680cc vs 595cc ns.
- STOMA 96% vs 13% p<0.005

COLO-ANAL ANASTOMOSIS (C.A.A.)

SPECIFIC COMPLICATIONS (COLO-ANAL n: 120)

- LEAK 0
- DEHISCENCE 0
- RVF 1
- PELVIC PERITONITIS 1
- STENOSIS 4
FACTORS OF SUCCESS OR FAILURE OF COLO-ANAL ANASTOMOSIS

COLO-ANAL ANASTOMOSIS (C.A.A.)
SPECIFIC COMPLICATIONS

1. FUNCTION
   RELATED TO:
   - Pre-operative sphincter function
   - Intra-operative sphincter damage
   - Compliance of neo-rectum
   - Post-operative quality of stools

FUNCTION

PRE + POST RADIATION ANO-RECTAL MANOMETRY

(RADIATION INDUCED SPHINCTER FIBROSIS)

FACTORS OF SUCCESS OR FAILURE OF COLO-ANAL ANASTOMOSIS

COLO-ANAL ANASTOMOSIS (C.A.A.)
SPECIFIC COMPLICATIONS

2. FUNCTION
   - Intra-operative sphincter damage
   - Excision of proximal internal sphincter not crucial for continence
   - Reconstitution of recto anal inhibitory reflex often seen
   - Sphincter stretch unnecessary
   - Rehab possible before closing ileostomy / colostomy

FACTORS OF SUCCESS OR FAILURE OF COLO-ANAL ANASTOMOSIS

COLO-ANAL ANASTOMOSIS (C.A.A.)
SPECIFIC COMPLICATIONS

3. Function
   - Compliance of neo-rectum
   - Always use of non-radiated descending colon for anastomosis
   - Long term results of straight anastomosis similar to those of colonic pouch

FACTORS OF SUCCESS OR FAILURE OF COLO-ANAL ANASTOMOSIS

COLO-ANAL ANASTOMOSIS (C.A.A.)
SPECIFIC COMPLICATIONS

4. Function
   - Post-operative quality of stools
   - Excessive frequency often seen
   - Dietary recommendations in the 1st year
   - Use of loperamide seldom necessary

CONTROL OF DISEASE

TOTAL MESORECTAL EXCISION = Maximum possible lateral margin
EXCISION UP TO THE DENTATE LINE = Maximum possible distal margin
DIRECT VISUAL CONTROL OF TUMOR DISTAL EDGE
MORE PRECISE ASSESSMENT OF RELATIONSHIP OF TUMOR WITH LEVATORS AND OTHER PELVIC ORGANS (VAGINA, PROSTATE)
POST-OPERATIVE STAGE (UICC) n: 120

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<tr>
<th>STAGE</th>
<th>Pts</th>
<th>%</th>
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<tbody>
<tr>
<td>0</td>
<td>9</td>
<td>(8.2%)</td>
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<tr>
<td>I</td>
<td>48</td>
<td>(39.6%)</td>
</tr>
<tr>
<td>II</td>
<td>26</td>
<td>(22.1%)</td>
</tr>
<tr>
<td>III</td>
<td>37</td>
<td>(30.1%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>63</td>
<td>(52.2%)</td>
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</tbody>
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SURVIVAL (5 YRS.)

FACTORS OF SUCCESS OR FAILURE OF COLO-ANAL ANASTOMOSIS

SURVIVAL FUNCTION n: 40

AT 4 YEARS

<p>| | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>30</td>
<td>GOOD CONTINENCE</td>
<td>77.5%</td>
</tr>
<tr>
<td>4</td>
<td>INCONTINENCE TO LIQUID STOOLS</td>
<td>12.5%</td>
</tr>
<tr>
<td>3</td>
<td>INCONTINENCE TO FLATUS</td>
<td>7.5%</td>
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<tr>
<td>1</td>
<td>COLOSTOMY (LOCAL RECURRENCE)</td>
<td>2.5%</td>
</tr>
<tr>
<td>2</td>
<td>SEXUAL/ UROLOGICAL DISFUNCTION</td>
<td>5%</td>
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</tbody>
</table>

CONCLUSION I

PREOPERATIVE XRT AND SPHINCTER PRESERVATION SURGERY (INTERSPHINCTERIC PROCTECTOMY) PROVIDE GOOD CONTROL OF DISTAL RECTAL CANCER. COMBINED XRT-CHT SEEMS TO IMPROVE ONCOLOGIC RESULTS WITH MINIMAL ADDITIONAL MORBIDITY. OUR 6-8 WEEK POST XRT INTERVAL MAXIMIZES TUMOR SHRINKAGE REDUCING THE RISKS OF RADIATION-INDUCED COMPLICATIONS.

CONCLUSION II

INTERSPHINCTERIC PROCTECTOMY ACCORDING TO OUR EXPERIENCE REDUCES POST-OPERATIVE COMPLICATIONS AND RISK OF LOCAL RECURRENCES. USE OF DIVERTING ILEOSTOMY/COLOSTOMY IS MANDATORY IN CASES OF COLO-ANAL ANASTOMOSIS. THE QUALITY OF LIFE IS WELL ACCEPTED BY THE PTS.