Intersphincteric Resection For Low Rectal Cancer

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Objectives & Backgrounds:

Intersphincteric resection for low and very low rectal cancer is an aggressive and demanding surgical approach, extending resection into the intersphincteric space and involve complete excision of the mesorectum and excision of part or the entire internal sphincter.

The purpose of this study is to characterize the preliminary therapeutic response of this sphincter saving operation as an alternative to A-P resection, introduced for the first time in some Middle East countries (Iraq Yemen).

Methods: Eleven patients were operated from 2004-2007 in three location (one in Iraq and two in Yemen). Patients were evaluated prospectively with specific preoperative and postoperative criteria’s.

Results: All patients had adenocarcinomas, staging according to Duke Classification (stage A 3, stage B 4 stage C 4). All patients were diagnosed with presenting sign and symptoms indicating significant delay Fig.2. All patients had low and ultra low rectal cancer, (median distance from the anal margin, 5 (range 2-8 cm).

No protective colostomy was used in all cases. Postoperative complication : (abdominal wound infection 2 fecal fistula 1, liver metastatic nodule 1, fecal incontinence in the immediate postoperative period (slight to marked 9) CONCLUSION; Intersphincteric resection is an important radical procedure for sphincter saving surgery. The technique has satisfactory immediate and short term outcome both in functional and oncology respective, and it is a better alternative to A-P resection with permanent colostomy in most cases except when the external sphincter is involved by infiltration...Prophylactic temporary colostomy is not mandatory.[Key words; Intersphincteric resection, sphincter saving surgery, protective colostomy].

Until recently radical surgery with terminal permanent colostomy, with or without other oncology therapy (radiation, or chemotherapy), was the only hope for permanent cure from low rectal tumor (low and middle third), and was the main objective. The search for preservation of continence as an additional objective to achieve acceptable quality of life has lead to the development of sphincter saving procedure even for ultra low rectal cancer.

The knowledge that most of the lymphatic drainage of rectum is mainly cephalic and it is contained within the mesorectum and does not travel to the pelvic floor or perennial tissues, has led to the realization of the importance of total excision of the mesorectum
This article describes the experience of introducing intersphincteric resection as a satisfactory alternative to A-P resection for low and ultra-low rectal cancer in some middle east countries and presenting the results for the immediate and short term and outcome.

Methods:

From February 2004 to July 2007 in three locations (1st Al-yarmouk teaching hospital/medical college/Al-mustansiryah univ./Baghdad/Iraq. 2nd Kuwait university hospital/Sana’a university/Sana’a Yemen. 3rd Ibn sina teaching hospital/medical college/hadhramout univ./Al-mukala/yemen). A prospective study in which eleven patients were selected for sphincter saving operation (intersphincteric resection) as an alternative to A-P resection with permanent colostomy. All having low or ultra low rectal cancer.

Preoperative assessment includes:
- Examination of cardiovascular, respiratory, renal and liver functions.
- Examination to exclude distant metastasis by chest X-ray and U/S.
- Sphincter function assessment by digital examination and subjective continence status:
  - Proctoscopy and biopsy
  - U/S scan
  - MRI and/or CAT scan.

The criteria for selecting the patients for this study include:
- Absence of distant metastasis.
- Absence of local spread beyond the rectal wall.
- Tumor location in the lower rectum and anal canal by rigid sigmoidoscopy at <8 cm from:
  - The anal margin.

Anal manometry were not used, and MRI with contrast for prediction of sphincter infiltration and possible infiltration of adjacent structures preoperatively were not available.

Postoperative assessment depends on:
- Histological examination of the excised tissues.
- Clinical examination and subjective assessment of the continence status.
- Abdominal U/S and chest X-ray.

Surgical Procedure: Standard bowel preparation, and prophylactic antibiotic starting the day of the operation.(1)

Abdomino-perineal position using the Lloyd-Davis position.
The abdominal part commence with exposure of the rectum and the mesorectum down to the pelvic floor including the regional lymph draining field up to the inferior mesenteric artery origin, with division of the sigmoid colon and closure of the distal part by purse string suture.

The perennial part commence with the use of five allis forceps (instead of the self holding retractor), infiltration of the lower anal canal mucosa with 1/200000 noradrenaline Fig 1.

Fig (1): Access to internal sphincter/.next incision of the internal sphincter and separation from external sphincter.

Exposure of the internal sphincter through circular anoderm incision and through the intersphincteric space separating the internal sphincter from the external sphincter and puborectalis.

The tumor bearing rectum and the distal sigmoid is delivered through the anus.(4)

The pelvis is washed with N/ saline.

Colo-anal anastamosis, the sutures include part of the external sphincter.

No protective colostomy is used in this trial.

Follow-up program depend on clinical examination, abdominal U/S and chest X-ray. First after one month then at 3/12 intervals.

Patients with involved lymph nodes in the mesorectum or the regional lymph drainage field (Duke C), will be advised for chemotherapy at the regional oncology center.

Continence status is recorded according to the patient’s subjective assessment using Williams and Johnson scale 3.

Results:

From Feb 2004 to July 2007 eleven patients (8males and 3 females), median age 58.5 year.
The median distance of the inferior margin of the tumor from the anal margin were 4cm (range 2-6).

Clinical presentation range from acute abdomen,(intestinal obstruction) to signs and symptoms related to the anorectal region, all patients present as advanced cases with significant delay, Fig 2.

Two patients presented as acute abdomen, due to intestinal obstruction with temporary loop colostomy at the sigmoid colon.

Post operative histopathology staging; according to Dukes classification; stage A 3. Stage B 4. Stage C 4.).

Post operative complication.

Mortality (N=0). Abdominal wound infection. (N=2) controlled easily with wound care and antibiotic. Fecal fistula from the site of the tube drain which drain the ischiorectal space (N=1) the fistula closed after few days on conservative treatment.

Continence functions were assessed subjectively and by digital examination of the external sphincter. Three patients experienced fecal incontinence for the first bowel motion and for the next few days. Four patients experienced increased frequency (> 5) in the first few days the rest of the patients experienced only slight increase in frequency. All patients had satisfactory continence with slight increase in frequency at the first month follow-up, Fig 2.

Late complication:

The important oncologic late complications include usually the local recurrence and distant metastasis, local recurrence occurs usually after two years

R.Schiessel and colleagues report 6(5.3 percent) patients developed local recurrence out of 113 resections. the median follow-up time was 94 months-(4)

Mean follow up period in this series is 7.4 monthes (range 3-13), no local recurrence were observed.

One patient develop liver metastatic nodule after 11 months, (case No. 3 stage C).

This series represent early and short term result. 6

Discussion:

Significant proportion of rectal cancer is localized in the upper 1/3 near the rectosigmoid junction, 50% and is usually dealt with by anterior resection. Tumors in the middle and lower thirds is usually treated surgically by APR with permanent colostomy. With the advent of circular surgical stapler devices low rectal and coloanal anastamosis become possible and APR was reserved for rectal cancer that were within 1-2 cm from the top of the anal canal.7

Advances in our understanding of the physiology of fecal continence, and the pathogenesis and spread of malignant tumor of rectum has confirmed the following;

The direction of the lymphatic spread of the rectal tumor is mainly cephalic and that most of the lymphatic drainage of rectum is contained within the mesorectum.
Partial or total resection of the internal sphincter does not cause incontinence and usually had reasonably functional result. Although all patients had significantly decreased anal manometry parameters, (willis and colleagues).

Intersphincteric resection of low and ultra low rectal cancer was developed two decades ago as a sphincter saving procedure, it is a demanding radical operation, it require total mesorectal excision (TME). And is usually done by abdominperennial procedure.

**Mesorectum:** In both sexes the rectum and its surrounding areolar tissues is separated from the anterior structure by denonvillier’s fascia and posteriorly from the sacrum and coccyx by waldyre’s fascia. In the upper 2/3 this areolar tissue form a posterior cushion which becomes circumferential below the recto uterine or the rectovesical pouch, this carries most of the blood vessels and lymphatic drainage and its known as the mesorectum. inferiorly and posteriorly the mesorectum has a bi-lobed structure also known as the lateral ligaments.

**Preoperative assessment:** Staging should be carried out to determine the extent of the tumor and whether or not there are distant metastasis, this involve C.X.R. and external abdominal U/S, however external liver U/S is only about 85% accurate. Intra operative contact U/S of liver is most sensitive.

Preoperative CT scanning for rectal tumor itself usually does not add much to the clinical examination.

Contrast MRI particularly using super paramagnetic iron is extremely sensitive means of detecting liver metastasis.

Phased array pelvic coil gives very high resolution image of the rectum and mesorectum (this may prove the most accurate preoperative staging of rectal tumor).

**Conclusions:**

Intersphincteric resection for low and ultra low rectal tumor is a better alternative to offer to the patients than APR with better quality of life and good oncologic and functional results, its introduction in middle east (Iraq and Yemen), is the objective of this trial, although only the immediate and short term result is available, a better preoperative assessment could be achieved with more advanced instrument, and application of this therapeutic modality on a large scale is needed for long term assessment.

**References:**


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