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Comparative Evaluation of Total Mesorectal Excision Versus Low Anterior Resection In Management Of Carcinoma Rectum

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Abstract:
BACKGROUND: The term "Total mesorectal excision"strictly applies in the performance of a low anterior resection for tumors of middle and the lower rectum,wherein it is essential to remove the rectum along with the mesorectum up to the level of the levators.Mesorectum is the tissue surrounding the rectum covered by visceral layer of endopelvic fascia.It contains perirectal fats,draining lymph nodes and superior rectal blood vessels.The visceral and parietal layer of fascia are separated by a loose areolar tissue-the bloodless plane described by Heald as Holyplane.The plane of dissection lies in this avascular space.
METHOD-27 diagnosed cases(both male and female)of middle and lower rectal adenocarcinoma operated in SKMCH Muzaffarpur and various other hospitals during 2018 to 2019 and followed for 12-24 months. Out of 27 cases 14 cases were operated by Total mesorectal excision and 13 cases were operated by low anterior resection.Outcomes of both techniques were evaluated in terms of local recurrence rate,2 year survival rate and complications. Local recurrence rate is measured in terms of circumferential resection margin positivity rate.
RESULT: circumferential resection margin positivity rate was about 7% for Total mesorectal excision, whereas it was between 19%-25% for low anterior resection. There is understandably,a higher local recurrence rate following low anterior resection in comparision to Total mesorectal excision. Early and long term complications were significantly higher in low anterior resection in comparision to Total mesorectal excision.
CONCLUSION: Total mesorectal excision addresses earlier treatment concerns regarding adequate local control of carcinoma rectum.It significantly increases 2 year survival rate from 45% to 77% with acceptable complications.
Key Words: *Endopelvic fascia,Mesorectum,Holyplane.*

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I. Introduction:

Rectum is most common site of colorectal cancer. Usually carcinoma rectum present as an ulcer, but polypoid and infiltrating type are also common.Hematochezia is earliest and most common symptom,but sense of incomplete evacuation is very common.Age of presentation of carcinoma rectum is above 55 years,but there is growing incidence of early age involvement,as early as 14 year old.This age shifting of carcinoma rectum warrants reliable treatment option.Diagnosis is confirmed by rigid sigmoidoscopy with biopsy.Most common histological type is adenocarcinoma.

Low anterior resection is associated with poor local control as well as higher complication rate.These procedure has low 2 year survival rate.Total mesorectal excision is associated with adequate local controll of carcinoma rectum involving middle and lower part of rectum.It has significantly higher five year survival rate and significantly lower complication rate.However,patients who underwent total mesorectal excision has unexpected rate of anastomotic dehiscence.It is safer often to consider an ileostomy than to risk of an anastomotic leak.Patients may also experience urgency and incontinence to a higher degree than they would if total mesorectal excision were not performed.However,these issues usually subsides with time.

The treatment of rectal cancer is multi model with adjuvant radiotherapy and chemotherapy having benefit in some setting. In addition accurate preoperative staging is dependent on good radiological support. It is therefore necessary to subject all rectal cancers to multi department conference and to design individualized treatment plans based on a well defined protocols.

As our main concern is surgery,it is must to know operative factors associated with compromised outcomes and action which combat compromised outcomes. scrupulous, unhurried, sharp dissection techniques used to prevent disruption of "tumor mesorectal package". Transected bowel should be sealed and it should be washed with hypotonic solution if operative field get contaminated by viable tumor. Meticulous knowledge of anatomy, meticulous hemostasis and adequately informed assistant is needed to dissect along holyplane.To

avoid increased anastomotic leak rate, there should be low threshold for defunctioning stoma, particularly in men .Identification and preservation of relevant autonomic nerve is required to avoid urinary and sexual dysfunction.

MATERIAL&METHODS: This prospective study was conducted in SKMCH Muzaffarpur and various other hospital in Bihar during 2018 to 2019 and followed for 12-24 months.All 27 cases selected for study had carcinoma rectum involving middle and lower rectum.All selected cases were randomly placed in Total mesorectal excision 14 cases in group A and Low anterior resection 13 cases in group B.Mean age of cases were 41 years.

INCLUSION CRITERIA: Male & female having carcinoma involving middle and lower rectum,were included in the study. There was no any age bar.

EXCLUSION CRITERIA: Male and female having carcinoma involving upper rectum,sigmoid colon and anal canal,were excluded from study.There was no any age bar.

All 27 patients included for this prospective study were examined thoroughly and diagnosis was confirmed by rigid sigmoidoscopy and biopsy.Apart from this all cases included in study were investigated by base line investigations like CBC,LFT,RFT,RBS, CXR-PA view and viral markers.CECT was done to evaluate distant metastasis.

II. Observation:

Out of 27 cases 16(60%) were female and 11 cases (40%) were male. Age ranged from 14 to 68 years with mean age 41 years. Youngest patient was a 14 year old female. Female to male ratio was1.5:1.The mean total time of surgery in Total mesorectal excision was 150 to 180 minutes compared to 90 to 120 minutes in low anterior resection group.Suction drain was applied in all cases of Total mesorectal excision and low anterior resection.Drain was removed on fifth post-operative day in all cases.

TABLE: Observation in the present study.

PARAMETERS	TOTAL MESORECTAL EXCISION (GroupA)n=14	LOW ANTERIOR RESECTION (Group B)n=13
Bladder dysfunction	14%	75%
Impotence	14%	75%
Clustering	35%	45%
Urgency	21%	30%
Incontinence	21%	30%
Anastomotic dehiscence with ileostomy	07%	15%
Local recurrence rate	07%	30%
Two year survival rate	77%	45%

NOTE: Clustering-is low anterior resection syndrome manifested as frequent small bowel movement.

Prophylactic loop ileostomy was fashioned in all cases to reduce the risk of anastomotic dehiscence.Ileostomy was closed after an average duration of 10 weeks. Postoperative complications like urgency, incontinence, anastomotic dehiscence, impotence, clustering and bladder dysfunction were compared in both groups as shown in Table. Among these complications urinary and sexual dysfunction subsided with time. Local recurrence rate and 2 year survival rate also compared in both groups as shown in Table.

Mean duration of hospital stay in Total mesorectal excision group was 9-10 days whereas, it was 11-12 days in low anterior resection group. Time off work in patients of Total mesorectal excision group was 14 weeks as compared to 16-18 weeks in low anterior resection group.There was single case of anastomotic dehiscence in Total mesorectal excision group and two cases of anastomotic dehiscence in Low anterior resection group which was successfully managed conservatively in 10-14 days with help of parenteral nutrition.There was single case of local recurrence in Total mesorectal excision group in comparision to four cases of local recurrence in Low anterior resection group during 12-24 months of follow up.77% patients of Total mesorectal excision group is heading towards five year survival in comparision to 45% patients of Low anterior resection group heading towards five year survival.

Although, five year survival rate also depends on histological grading of carcinoma rectum as well as stage of disease and presence/absence of metastasis; it has been seen that significantly higher proportion of patient who underwent total mesorectal excision is leading carcinoma rectum related symptom free life.

III. Discussion :

Total mesorectal excision was first described in 1982 by Heald, and is now standard treatment for middle and lower rectal cancer in a number of countries worldwide.

Total mesorectal excision concept is based on the loco-regional recurrence preference of rectal carcinoma.It follows intuitively that adequate enblock clearance of the rectal mesentery including its blood supply and lymphatic drainage would minimize possible disease relapse.Heald hypothesis states that the mesorectum represents embryological advantages conferring protection against tumor dissemination until the terminal stage.

Local recurrence rate of 7% following Total mesorectal excision and Five year survival rate of 77% following Total mesorectal excision in our study is comparable with international figure of 6-8% and 75-83% respectively. Complications like Impotence and bladder dysfunction following Total mesorecal excision in our study is 14% which is in the range 12-18% of international figure.Clustering is Low anterior resection syndrome manifested as frequent small bowel movement is also seen in Total mesorectal excision but in comparatively lower percentage of patients.In our study 21% patients developed urgency and incontinence following Total mesorectal excision.

In another 13 patients of Low anterior resection group, incidence of Impotence and bladder dysfunction is 75%,Clustering is 45% and urgency and incontinence is 30%.Local recurrence rate in our study In Low anterior resection group is 30% as compared with other study in range of 25-28%. Two year survival rate following low anterior resection is 45%.

IV. Conclusion:

Despite initial controversy,Total mesorectal excision has been established as a feasible,reproducible adjunctive surgical technique with diminished local recurrence,significantly increased two year survival and acceptable complications. Nowadays Total mesorectal excision is therapeutic gold standard treatment for carcinoma middle and lower rectum.

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