An Experience with Colorectal Carcinomas

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This prospective study was conducted at Sir Ganga Ram Hospital over a period of three years. All patients presenting with colorectal carcinoma were studied and included in the study. Age of the patients included in the study ranged from 18 to 74 years. Gender distribution was 12 males and 17 females. The lesions were identified in the anal canal in 3 cases and in the rectum in 9 cases. At the rectosigmoid junction in 1 case, in the splenic flexure, transverse colon and ascending colon had lesions in 3, 5, 2 cases respectively. Six lesions were identified in the caecum. All of these patients were managed surgically according to the lesion location.
Key words: APER, CA Rectum, and Diversions.

Few topics in cancer research have engendered more excitement than the discovery of identifiable genetic defect in patients with inherited as well as sporadic forms of colorectal carcinoma. There is good evidence that neoplastic disease has afflicted humans since prehistoric times. Mummies from pre-Columbian Peru of 2400 years ago, as well as Egyptian mummies from 3000 Bc have metastatic skeletal deposits[1]. It was Hippocrates who first proposed a theoretical framework to explain cancer invasion, a disease of excess black bile, one of the four humors of the body (black bile, yellow bile, blood, and phlegm). Invasion was believed to occur by leakage of black bile into or out of the affected tissue. This theory prevailed for more than 2000 years[2].

Colorectal cancer represents a major public health problem. Within the European union recorded mortality shows that during the period of 1980-84 the number of deaths per anum was over 85000. About fifteen years back the statistics proved it to be the fourth most frequent malignancy world wide and is the second most common cause of malignant death in the U K, accounting for 13% of registered malignancies.

Despite significant research effort and improvement in clinical management, the survival rates for colorectal cancer have changed little in the past decade. Fewer than 50% of patients with newly diagnosed colorectal cancer will remain alive after five years.

A key to the successful treatment of any pathological condition is a clear understanding of its natural history, and it is perhaps this that has most influenced the modern approach to colorectal malignancy. Morson from St marks hospital, London, UK, first recognized the importance of benign Colonic adenomas as potential precursor of malignant change[3]. The so called, adenoma – carcinoma sequence is now an accepted pathway to malignancy, with pathological progression from normal Colonic mucosa through an aberrant crypt focus and its hyperproliferative epithelium, to adenoma, then dysplasia, and finally malignant invasion. This process has recently been substantiated by the discovery of a number of genetic mutations that correlate with stages in this development cycle[4].

Material and methods

This prospective study was carried out from December 1999 to December 2002. The place of study was one of the three surgical units of sir Ganga Ram Hospital Lahore. The patients were admitted through both the outpatients as well as casualty departments. All the patients presenting with features suggestive of Colorectal Carcinoma were investigated. Investigations varied from plain x-ray abdomen, digital examination, Proctoscopy, sigmoidoscopy, colonoscopy, contrast radiological studies, abdominal ultrasound and in certain cases C T abdomen was also carried out. Serum CEA levels was also done in certain cases. Histopathology reports were asked from the Department of pathology in the same institute. On the basis of investigations treatment was planned in individual cases. Pre operative gut preparation was a routine in all the elective cases and preparation time in each case was forty-eight hours. Antibiotics were started at the time of induction of anesthesia. In all patients the flow sheets were maintained and all the relevant data of the patient was recorded and possible record of follow up was also recorded.

Results

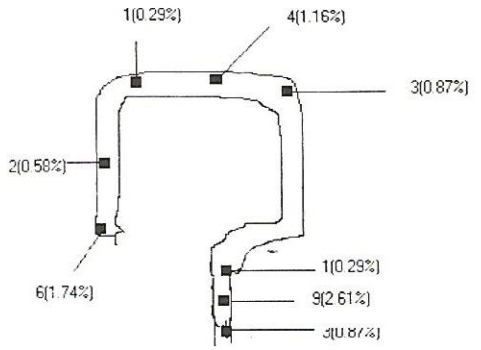
The study includes twenty nine patients of these twelve were males and seventeen females. Age ranged from 18 to 74 years. Only three patients were admitted through casualty and of these only one underwent emergency surgery. All the other patients were operated on the elective lists with preoperative gut preparation. Routine investigations were carried out in all patients. All patients had digital examination and sigmoidoscopy. The lesion was palpable on digital examination in 7 cases where as sigmoidoscopy revealed 6 cases. In other patients colonoscopy was able to detect lesions in other parts of the large gut. All patients under went colonoscopy but in five patients it was not possible to visualize the full length of large gut. Barium enema was also carried out in all elective admissions. Metachronous or synchronous lesions were not detected in any patient. Hepatic lesions were detected in 5 patients and the diagnostic yield of the CT scan and abdominal ultrasound was found to be equal in this study.

Table: Distribution of the lesions and treatment done

Site of lesions	n=	Treatment offered
Anal canal	3	APER
Rectum	9	3 Anterior resection 6 APER
Rectosigmoid junction	1	1 Anterior resection
Splenic flexure	3	3 Resection & anastomosis
Transverse colon	5	4 Resection & anastomosis 1 Right hemicolectomy
Ascending colon	2	2 Right hemicolectomy
Caecum	6	6 Right hemicolectomy

All patients were treated by laparotomy and treatment offered is shown in the table. In the patients who underwent resection and anastomosis was done five of these anastomosis were diverted by colostomy and in two cases no diversion was done.

The patients were found to have lesions in various parts of hindgut as shown in the diagram below.



Lesion Distribution

Discussion

The high incidence of the disease and poor out come of the treatment has made the colorectal carcinoma as second most lethal disease of all the malignancies. About 40,000 new cases registered every year I the UK with 19000 deaths from the disease shows that it is a significant public health problem. Working on the factors to prevent the disease it was noticed that three epidemiological phenomena suggest that there is significant environmental influence on the incidence of colorectal cancer; there is a wide geographical variation in incidence of colorectal cancer in different parts of the world. The disease also shows migrational convergence, with the migrant population adopting the incidence rates of the country of destination. In countries such as China that have undergone recent cultural change, the incidence of the disease is on the rise[5].

The role of population screening for malignancy is ultimately to improve the clinical out come. This can either be achieved by identifying a premalignant in the screened population that, if removed, prevents malignant change, or by identifying cancers at an early potentially curable stage[6]. Surgical resection is the best chance of cure for colorectal cancer. Nevertheless, up to 50% of patients will develop locally recurrent or distal metastatic disease following what was considered curative surgical resection. 5- fluorouracil remains the gold standard for adjuvant therapy in colorectal cancer. Early results were disappointing but the addition of a biological response modifier. Levamisole, given for a year was reported by Moertel et al, to give a 33% improved survival in dukes' stage C colon cancer[7]. Similar results were reported in early 1990s by three randomized trials using 5-FU and the response modifier Folinic acid[8,9]. The propensity of the colorectal cancer to metastasize to liver prompted regional delivery of chemotherapy to the liver or portal circuits. Direct hepatic metabolism allows high dose treatment without systemic toxicity. A meta- analysis of portal vein infusion in an adjuvant setting involving 1500 patients suggests an improved odds ratio for death in colorectal cancer[10].

Although the place of adjuvant therapy would appear to be clear it is apparent on close inspection that the benefits are probably confined to patients with Dukes' stage C disease. In addition, if the survival benefit is viewed from a different angle the results are less impressive. In terms of the number of patients needing treatment in order to avoid one death; 100 patients with dukes' stage C disease need to undergo radical surgery to achieve cure in 30%. If 100 such patients then receive 1 year of adjuvant therapy; between 1 and 10 patients may then be cured. In other words 90-99% of patients do not benefit from treatment.

The anatomical constraints of the pelvis increase the likelihood of local recurrence in in surgical treatment of rectal cancer. In node negative disease the recurrence rate may be as low as 5-10%, in Dukes' stage B disease this increases to 25-30% and can be more than 50% in stage C disease particularly if locally invasive. For these reason any effective adjuvant approach to rectal cancer should address both local and distal control.

Radiotherapy provides the gold standard for local disease control and it can be delivered in two ways: preoperative and postoperative. In the first approach using low dose radiation showed little or no effect, however two later studies showed significant reduction in local recurrence rate but no change in survival[11,12]. Three early-randomized trials postoperative radiotherapy in rectal cancer failed to show a convincing reduction in either local recurrence or mortality[13,14]. However the medical research council has also published the results of a randomized trial for mobile rectal cancer, comparing surgery vs, surgery followed by radiotherapy[15] The results once again showed significant reduction in local recurrence of disease with no change in survival. With the adjuvant success of adjuvant chemotherapy in colon cancer the combination of chemoradiotherapy has a therapeutic rationale in rectal cancer. A number of randomized trials confirm that this potential advantage can be realized[16].

References.

1. Wells C: Ancient Egyptian Pathology. J Laryngol Otol 77:261-265, 1963.
2. Liotta LA: Overview of the biology of cancer invasion and metastasis. In Rosenberg SA (ed): Surgical treatment of metastatic cancer. Philadelphia, JB Lippincott, 1987, pp 3-28.
3. Morson B. genesis of colorectal cancer. Gastroenterology 1976; 5: 505-10.
4. Vogelstein B, Kinzler KW. The multistep nature of cancer. Trends genet 1993; 9: 138-41.
5. Maclennan R, Macrae F, Bain C et al. Randomized trial of intake of fat, fibre, and beta-carotene to prevent colorectal adenomas. The Australian polyp prevention project. J Natl cancer inst 1995; 87: 1760-6.
6. Hardcastle J, Chamberlain JO, Robinson MK et al. Randomized control trial of fecal occult blood screening for colorectal cancer. Lancet 1996; 348: 1467-71.
7. Moertel CG, Fleming TR, Macdonald JS et al. Levamisole and Fluorouracil for adjuvant therapy of resected colon cancer. N Engl J Med 1990; 322: 352-8.
8. Ehrlichman C, Marsoni S, Seitz JF et al. Event free overall survival is increased by FUFA in resected B and C colon cancer: A prospective pooled analysis of 3 randomized trials. Proc ASCO 1994; 13: 194.
9. Wolmark N, Rockette H, Fisher B et al. The benefit of leucovorin modulated fluorouracil as postoperative adjuvant therapy for primary colon cancer: Results from National Surgical adjuvant breast and bowel project protocol C-03 . J Clin Oncol 1993; 11: 1879-87
10. Gray R, James R, Mossmon J, Stenning S, AXIS- a suitable case for treatment. Br J Cancer 1991; 63: 841-5.
11. Gerard A, Buyse M, Nordlinger B, et al. Preoperative radiotherapy as adjuvant treatment in rectal cancer.Final results of a randomized study of the European organization for research and treatment of cancer. Ann Surg 1988; 208: 606-14.
12. Stockholm Rectal Cancer Study Group. Preoperative short term radiation therapy in operable rectal carcinoma. A prospective randomized trial. Cancer 1990; 66: 49-55.
13. Balslev I, Pedersen M, Teglbjaerg PS et al. Prospective radiotherapy in Dukes' B and C carcinoma of the Rectum and Rectosigmoid. A randomized multicenter study. Cancer 1986; 58: 22-8.
14. Gastrointestinal tumour study group. Prolongation of the disease-free interval in surgically treated carcinoma. N Engl J med 1985; 312: 1465-72.
15. Medical research council rectal cancer working party. Randomized trial of surgery alone versus surgery followed by radiotherapy for mobile rectal cancer. Lancet 1996; 348: 1610-14.
16. Krook JE, Moertel CG, Gunderson LL, et al. Effective surgical adjuvant therapy for high risk rectal carcinoma. N Engl J Med 1991; 324: 709-15