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Special Communication

DIAGNOSTIC ROLE OF BARIUM ENEMA IN CARCINOMA RECTUM

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ABSTRACT:

Objective: The main aim of this barium enema study was to evaluate its role in patients suspected to have rectal pathologies with complaints of change in bowel habit, anorexia/weight loss, bleeding per rectum and acute/sub-acute colonic obstruction.

Materials and Methods: Barium enema powder, Enema tube/Catheter, Enema tube with Inflatable Cuff and Enema Can.

Results: Barium enema study as screening test for colo-rectal carcinoma was undertaken. Contrast outlined the colonic growth in 35 cases, out of which the cases of carcinoma colon were 24 including 13 patients suffering from carcinoma rectum. The percentage of carcinoma colon to total colonic growth was 68% while, carcinoma rectum to total carcinoma colon was 54%.

Conclusion: On the basis of these investigations, it is concluded that patient's compliance is important factor in the early detection of colonic neoplasia. Though results of colonoscopy are more reliable but in practice, barium enema (double contrast) is performed initially to outline the lesion and then colonoscopy for biopsy purpose.

KEYWORDS: Barium sulphate, Colo-rectal carcinoma, Colonoscopy.

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INTRODUCTION

Colo-rectal cancer is the second leading cause of death attributed to cancer (Wang, 1998; Farrell and Friedman, 2000). The disease is common and it affects approximately 5% of the population at some time in their lives and associated mortality from advance cases is high. Therefore, screening for colo-rectal cancer is desirable (DeMarkles and Murphy, 1993; Segen *et al.* 1998). Different screening tests for colo-rectal cancer are available like stool for occult blood, barium enema and colonoscopy (Bramley *et al.* 1996). However, barium enema (double contrast), is safe, accurate, cost-effective test (Irvine *et al.* 1988), for patients at average and high risk of developing colo-rectal cancer, recommended after every 5 to 10 years, approved by the American Cancer Society (ACS), Health Care Financing Administration (HCFA) and Agency for Health Care Policy Research (AHCPR).

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MATERIALS, PATIENTS & METHODS

Materials:

Standard materials for barium enema were used. These included barium enema powder, enema tube/catheter with inflatable cuff and enema can.

Preparation:

Faecal matter was removed and cleansing of colon was ensured with the administration of aperients within previous 24 hours, along with low residue diet and adequate fluid intake in the previous 48 hours. In some patients an oral laxative was given the night before and a cleansing enema two hours prior to the procedure.

Procedure:

Hyoscyamine intravenous injection was given 15 minutes before starting this procedure. Patients were made to lie on left lateral decubitus position. A well-lubricated rectal catheter was inserted with the instructions to keep the anus tightly contracted against the catheter, to prevent leakage of Barium. In some individuals rectal balloon was inflated. Barium was run through the catheter upto mid transverse colon before clamping the tube and allowing the rectum to drain. Air was then insufflated, along with rotation of patient for coating the whole colon with barium and air. With patient in supine position, filled caecum promotes ileal reflux, due to ileo-caecal valve in dependent position.

Patients were asked to drink plenty of fluids to counteract potential dehydration, advised to take rest and a cleansing enema was administered to remove remaining barium.

RESULTS

One hundred sixty patients were screened for colorectal cancer with barium study over a period of two years – 35 cases (21%) were detected to have colonic growth. 24 cases out of 35 (68%) suffered from carcinoma colon and 13 cases out of 24 (54%) suffered from carcinoma rectum. Further analysis revolves around 13 cases of carcinoma rectum. Out of 13 patients 9 were males (age range 24-80 years) and 4 were females (age range 35-55 years).

Majority of carcinoma rectum patients (92%) presented with anorexia, weight loss and bleeding per rectum for 6 month to two years. In addition 6 patients (46%) had lower abdominal pain. Another (46%) presented with change in bowel habit. Two patients (15%) each had acute intestinal obstruction and mass lower abdomen.

Barium enema presentation:

The presentation of 13 cases in barium enema is given in Table-I. Majority (53%) showed polypoidal filling-defect.

Six cases had involvement of rectum 3-4 cm from anal verge, another six 6-8cm cases from the verge and remaining 1 case had lesion 10cm from the verge.

Endoscopic findings

Endoscopic (procto-sigmoido-colonoscopy) showed the macroscopic appearance in 13 cases as follows: Ulcerative tumour in six cases (46%), nodular ulcerative growth in 3 cases (23%), polypoidal tumour in 2 cases (15%) and one each as cauliflower – like and fungating growth (8% each).

Histopathology

All the patients were biopsied. Histological examination showed moderately differentiating adenocarcinoma in 9 cases (69%) and poorly differentiating adenocarcinoma in 4 (31%).

Metastasis

Ultrasound examination showed no evidence of metastasis in 8 cases (61%) while 3 cases showed metastasis to lymph nodes (23%), 1 case to liver (8%) and another case to both liver and lymph nodes (8%).

Table-I: Barium Enema Presentation (n =13)

Presentation	*Number*	*Percentage*
Polypoidal filling-defect with mucosal irregularity	7	53%
Persistent narrow segment with mucosal destruction	3	23%
Irregular narrowing with mucosal destruction	3	23%

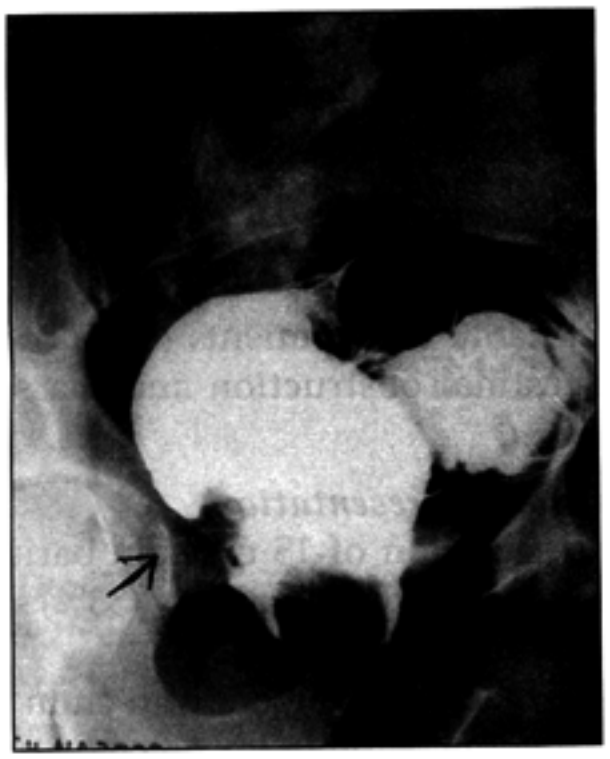

Fig. 1: A male patient age 40 years with history of bleeding per rectum, change in bowel habit and anorexia. Weight loss for 6 months. Barium enema study outlines a polypoidal filling defect at right rectal wall. On proctoscopy a cauliflower growth visualized 4cm from anal verge. Histopathology confirmed a moderately differentiating adeno-carcinoma rectum.

Fig. 2: A male patient age 60 years with loose motions off and on with blood for 2 years and weight loss for 1 year. Barium enema showed a narrow segment of rectum due to a mass, circumferentially involving the area with mucosal destruction, appears as annular growth. Sigmoidoscopy showed a fungating mass encircling the entire rectum. Histopathology confirmed a moderately differentiating adeno-carcinoma rectum.

DISCUSSION

About 75% of all new colo-rectal cancers strike individuals with no risk factors other than age and this is why regular screening is so important. Subjects over the age of 50 years are at average risk for developing this form of cancer[1]. Double contrast barium enema is a particularly good screening test[2,3]. It indirectly evaluates the entire colon while posing no risk to the patient. Recent studies support its accuracy and cost-effectiveness[4]. When colon cancer is found early and has not spread, the patient has 91% chances of survival but only 37% of these cancers are found at this stage. Once cancer has spread to nearby organ or lymph nodes, the chance of survival decreases drastically up to 7%[5]. Estimates of the relative sensitivity of barium enema and colonoscopy for detection of colo-rectal cancer performed in a study of 2193 cases in 20 community hospitals in Central Indiana showed that the sensitivity of colonoscopy for detection of colo-rectal cancer (95%) was greater than that for barium enema 83%[6,7,8,9].

Fig. 3: A female patients age 40 years with 2 months history of pain lower abdomen, constipation with off and on melaena, frequency, urgency and dysurea. Barium enema outlined an irregular long narrow segment of rectum and distal sigmoid colon with mucosal destruction. Favours diffusely infilterative/ulcerative growth. Proctoscopy visualized a long scirrous type strictured segment of rectum/distal sigmoid colon. Histopathology confirmed a poorly differentiating adeno-carcinoma rectum.

CONCLUSION

Patients especially over 50 years of age who

present with change in bowel habit, bleeding per rectum, anorexia/weight loss, abdominal mass or intestinal obstruction must be subjected to early investigations including double-contrast barium enema and Endoscopy.

Barium enema is an effective means of diagnosis of colonic neoplasia as it outlines the size and location of the lesion. This should be performed initially, followed by colonosocpy which is an even better diagnostic tool as it also help in taking the biopsy to confirm the diagnosis and to determine the type of colonic cancer.

REFERENCE

1. American Cancer Society. 1599 Clifton Road, NE, Atlanta, GA 30329-4251.
2. Vernava AM, Moore BA, Longo WA, Johnson FE. Lower gastrointestinal bleeding. Dis Colon Rectum 1997;40:846-858.
3. Glick S. Barium enema safe, accurate, cost-effective test for colorectal cancer screening. Hahnemann University Hospital, Philadelphia 2000.
4. Farrell JJ, Friedman LS. Gastrointestinal bleeding in older peoples. Gastroenterol Clin North Am 2000; 29:1-36.
5. Longstreth GF. Epidemiology and outcome of patients with acute lower gastrointestinal hemorrhage: a population based study. Am J Gastroenterol 1997;92:419-424.
6. Anonymous. Screening tests. US news and World report 40-64, 1997.
7. Irvine EJ, O'Connor J, Frost RA, Shovron P, Somers S, Stevenson GW, Hunt RH. Prospective comparison of double contrast barium enema plus flexible sigmoidoscopy vs colonoscopy in rectal bleeding: barium enema vs colonoscopy in rectal bleeding. Gut 1988; 29:1188-1193.
8. Wang TK. TuHH. Colo-rectal perforation with barium enema in the elderly case analysis with the POSSUM Scorning System. J of Gastroenterology 1998; 33 (2): 201-205.