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Case Report

Carcinoma of colon in an adolescent: a case report with review of literature

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ABSTRACT

Colorectal cancer is an extremely rare clinical entity in pediatric and adolescent age group. In the present case report, diagnosis and management of adenocarcinoma of colon in a teenager has been presented. A 15-year old boy without any predisposing factor was referred with gastrointestinal symptoms. With advanced diagnostic and therapeutic modalities, the case was treated successfully. Nonspecific vague symptoms of gastrointestinal system especially pain in abdomen, altered bowel habits if associated with weight loss should be meticulously evaluated further. Even in the absence of any predisposing conditions, high level of suspicion of CRC in children and adolescents is mandatory.

Keywords: Colon cancer, Adolescent, Predisposing factors

INTRODUCTION

Although Colorectal Cancer (CRC) is the third commonest malignancy in adults, it is an extremely rare clinical entity in pediatric and adolescent age group. Its reported prevalence is 1.3-2 cases per million of population.[1]

Because of nonspecific symptoms, unusual clinical profile and lack of awareness, pediatric and teenager patients remain undiagnosed in early stage and hence attributed to poor outcome in comparison with adults.[2]

Present case report of adenocarcinoma of colon in a teenager has been reported to highlight the significance of inclusion of this rare clinical condition in differential diagnosis while evaluating children having colonic symptoms with unknown etiology.

CASE REPORT

A 15-year-old boy presented with complaint of severe pain in abdomen left side, per rectal bleeding with constipation since last six months. During this period also he gave history of weight loss of 6 kg. For these complaints, he consulted general local physician at his place but symptoms were not relieved. So he has been referred to our tertiary care center. There was no family history of polyposis, colon cancer and past medical history was also non-significant.

On per abdomen palpation, there was lumpish feel on left side. Computed tomography of abdomen revealed concentric enhancing wall thickening in splenic flexure with marked narrowing of the lumen causing bowel obstruction without evidence of lymphadenopathy. After thorough clinical examination he underwent colonoscopy and stenosing growth was observed in sigmoid and descending colon portion. Biopsy was taken from the

growth and histopathological examination suggested diagnosis of adenocarcinoma. Hence surgical resection was planned.

After complete diagnostic work up and preoperative evaluation, left hemi colectomy with end-to-end anastomosis with complete nodal clearance was done. Tumor was resected with portion of colon about 22 cm long. On gross examination of specimen, growth was exophytic with glistening surface measuring 3.5x2x1 cm showing protrusion within lumina obliterating it partially. The lesion involved full thickness of intestinal wall. On cut surface, lesion was greyish and mucinous on appearance. Microscopic examination revealed extensive areas of mucin secretions with few narrow glands lined by cuboidal epithelium showing hyper chromatic and pleomorphic nuclei. The tumor was infiltrating through muscularis propria reaching beyond serosa into adipose tissue. Signet ring cells were also present. Regional lymph nodes were also positive for metastasis. All these findings confirmed diagnosis of moderately differentiated mucinous adenocarcinoma of colon. The cancer was classified as Duke's C stage. Postoperative course was uneventful.

After 1 month chemotherapy was planned in the medical oncology unit. He received 6 cycles of protocol chemotherapy consisting of oxaloplatin 80 mg, 5 fluorouracil 750 mg and nyrine 60 mg. He tolerated all these regimens without any adverse events. Patient is on regular follow up at interval of 3 months for evaluation of local recurrence and distant metastasis. At the end of 1 year, his report of CT abdomen is normal suggestive of disease free state.

DISCUSSION

Gastrointestinal malignancies are seen rarely in adolescent age group. CRC is common malignancy in adults with peak incidence at 65 years of age, but only 1% cases have been reported in first three decades of life.[3] Nonspecific symptoms and vague clinical profile diagnosis is delayed with adverse prognosis in children. Chronic pain in abdomen is quiet common complaint in this age group; hence usually pediatricians do not suspect malignant lesions of gastrointestinal tract so resulting in advanced stage malignancies.

M. Ibrahim reported two cases of CRC with metastasis to duodenum with poor outcome.[4] Oberto et al. also reported case of 14-year-old girl with prolonged treatment for inflammatory bowel disease, which was actually having malignant peritoneal mesothelioma.[5] D. Asley Hill and colleagues reviewed clinicopathological profile of 76 children with confirmed diagnosis of CRC. They reported adverse outcome of these children because 86% of them presented at advanced stage.[6] In one of the Indian study, researchers reviewed retrospectively presentation and behavior of 32 CRC in young patients with mean age 21.5 years and abdominal pain was major symptom and rectum was the most commonly involved site. Only 12% and 6% patients were alive at the end of 1 year and 2 years after completion of treatment respectively.[1] Our patient has signet cell adenocarcinoma, findings of which correlate with 6 patients from this Indian study with similar histopathology. In contrast to western literature, in our case left sided colon is involved in the malignancy.[7]

Chief presenting complaints with CRC in children are abdominal pain, discomfort and distention of abdomen, nausea, vomiting, altered bowel habits with constipation and loose watery stools and per rectal bleeding. Time from onset of symptoms to diagnosis has been reported to vary from 3 months to 2 years as per previous studies.

In the present case report we discussed clinical profile, diagnosis and management of rare malignancy of childhood. Our patient missed diagnosis of adenocarcinoma of colon for six months. Primary carcinoma of colon is rare condition in children and usually associated with ulcerative colitis, familial adenomatous polyposis.[8] Noh SY et al reported 15-year old colon cancer patient with a 10-year history of ulcerative colitis. This emphasizes screening with colonoscopy for children with long-term history of predisposing factor like Inflammatory Bowel Disease (IBD). Previous studies documented that 10% of the pediatric patients have predisposing factors for CRC. Genetic factors increasing risk of CRC are familial polyposis of colon, Gardner's and Bloom's syndrome, Turcot's and Peuts-Jegher's syndrome.[9] But in our case, boy had no significant risk factor such as positive family history of any type of malignancy or polyposis in his first and second-degree relatives, no past history of IBD and no specific dietary factor.

Antonio Muccillo and colleagues reported right-sided colon mucinous adenocarcinoma in a 12-year old boy with emphasis on image findings.[10] In case of our patient also as soon as he referred to our center he underwent thorough diagnostic work up. Then after confirmed diagnosis, he received advanced surgical and medical management. He is on regular follow up and event free at the end of 1 year after completion of treatment.

Poor prognosis for CRC in young patients is due to presentation at late stage and predominance of mucinous histopathology. Presence of signet ring cells more than 10% is also one of poor prognostic factor in children and adolescents.[6] Iyan Sultan and associates compared distinct features of CRC in children and adolescents with adults in population based study. They found tumor grade ($p=0.003$), pathologic subtypes ($p=0.008$) and tumor stage ($p=0.001$) significantly associated with survival of the cases and worse survival with mucinous adenocarcinoma (5 year survival rate 27% ± 8.1%) Exact biology and tumorigenesis of CRC in childhood age is obscure might evolve through different steps while in adults it is well known multistep process evolving over

10 years.[11] Early diagnosis with radical surgery and medical management is cornerstone to improve outcome of the patients. Being uncommon condition in children and adolescent age group, CRC is overlooked and detected at advanced stage. Radical surgery is the mainstay of the management in early stage of this malignancy improving survival of the patients. In routine clinical practice, general physicians and pediatricians do not come across CRC in childhood. Also scanty data is available in literature. So there is need of high level of awareness for screening and early detection.

CONCLUSION

Nonspecific vague symptoms of gastrointestinal system especially pain in abdomen, altered bowel habits if associated with weight loss should be meticulously evaluated further. Even in the absence of any predisposing conditions, high level of suspicion of CRC in children and adolescents is mandatory. Individuals in first two decades of life with chronic gastrointestinal symptoms should be screened with colonoscopy for detection of malignancy.

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