Case Report

Familial adenomatosis polyposis coli with small bowel neurogenic tumor: A rare synchronous presentation

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Abstract:

Familial adenomatosis polyposis coli (FAP) maybe associated with other epithelial and mesenchymal colonic or extra-colonic neoplasm. We present an unusual case of FAP with neurogenic tumor of the small bowel, which occurred synchronously in a 40-year-old male.

Keywords: Familial adenomatosis polyposis, Neurogenic tumor, Small bowel.

Introduction:

Familial adenomatosis polyposis coli (FAP) when detected should be removed surgically as early as possible to prevent the occurrence of colonic carcinoma. Rarely FAP is associated with other benign or malignant neoplasm. The synchronous occurrence of FAP with a neurogenic tumor is very rare.

Case History:

A forty year old male presented with a history of bleeding and mucous discharge per rectum off and on, for the previous two years. These complaints started after a surgery (resection anastomosis of mid small bowel) he had 2 years prior at another institute, for small bowel obstruction by a large tumor mass 20x20cms, attached to the wall of the intestine.On histopathology, it was seen to be arising from the submucosa and was suggestive of gastrointestinal stromal tumor (GIST) of the small bowel.However, immunohistochemistry was suggestive of a spindle cell tumor of neurogenicorigin (S-100 positive, C-KIT, Smooth muscle actin and CD 34 negative). He developed bleeding per rectum and constipation one month after that surgery. A colonoscopy done at that time showed multiple polyps, one of which was biopsied and reported as villous adenomatous polyp. He was advised surgery but was unfit. His father had carcinoma of the stomach. No family screening or genetic testing for gastrointestinal neoplasm in other family members was done.

The present computed tomography (CT) scan showed two irregular intra-abdominal lesions in the peritoneum measuring 3 cm each (? recurrence of neoplasm) with mesenteric lymphadenopathy (1 cm x1.5cm). Small polypoidal lesions were seen in the sigmoid colon along with circumferential thickening of the wall of the rectum. Based on these findings, a clinical diagnosis of multiple colonic polyps with intra-abdominal masses was made and the patient was taken for laparotomy. Intraoperatively, there were two retroperitoneal masses adherent to the small bowel mesentery which was inoperable. A 6cm x5cm growth was seen in the rectum. Hence only palliative resection of the affected sigmoid colon and rectum (with 2 cm margin distal to the growth)was done, with a colorectal anastomosis. The resected specimen was sent for histopathology. We received a specimen of recto-sigmoid colon measuring 19 cm x8.5 cm x4cm. There were multiple, mostly sessile mucosal polyps varying in size from 0.5 cm x0.5cm to 2 cm x2 cm, and a single large polyp measuring 5 cm x4 cm x4 cm near the distal surgical margin(Fig. 1.). The polyps were extending up to the surgical margins.

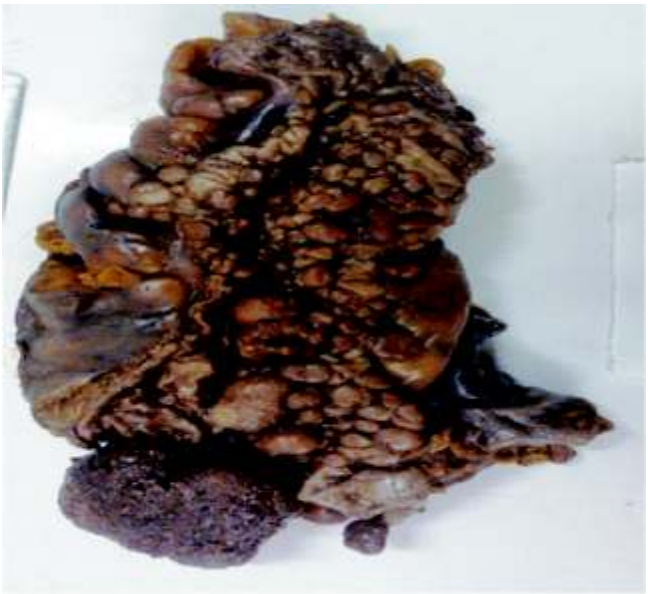

Figure 1: .Gross specimen of resected sigmoid colon showing multiple sessile polyps and a large polyp near the rectal end (lower part

Microscopic Pathology:

Sections taken from different areas of the specimen revealed polyps composed of tubular glands lined by mucin secreting epithelium. Few cells showed hyperchromatic elongated nuclei. Some areas showed abundant mucin pools spilling into the surrounding connective tissue. The largest polypshowed mucosal glands arranged in tubulo-villous pattern. The villi were lined by stratified mucin secreting epithelium.Mild to moderate nuclear pleomorphism was seen(Fig. 2.).

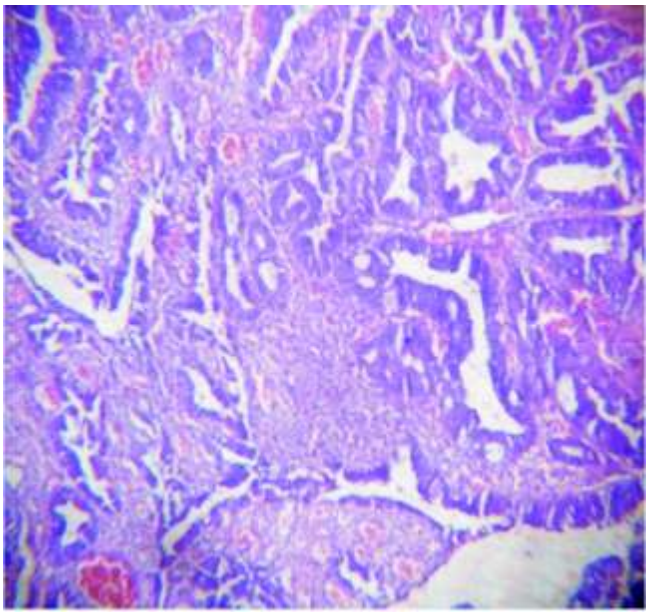

Figure 2: Photomicrograph showing colonic polyp with dysplastic lining epithelium (Haematoxylin and eosin X400)

Few of the glands were seen to be invading the underlying connective tissue. Inflammatory infiltrate composed of lymphocytes and plasma cells was present in the connective tissue. The final histopathological diagnosis was polyposis coli with villous adenomatous pattern, extending upto the surgical margins, with the largest polyp showing features of a well differentiated mucin secreting adenocarcinoma. He was referred to the oncologist for further treatment.

Discussion:

This rare case demonstrated the synchronous occurrence of a small bowel neurogenic tumorin a patient with Familial adenomatosis polyposis coli(FAP). The patient was diagnosed with adenomatosis polyposis coli one month after surgery for small intestinal neurogenic tumor, at another hospital. However he came for surgery for FAP only two years later, by which time he had developed a well differentiated adenocarcinoma in one of the polyps. A small bowel neurogenic tumor in association with FAP has previously not been reported, as per the literature reviewed by us.

FAP syndrome is characterized by the progressive development of hundreds to thousands of adenomatous polyps in the large intestine. If the colon and/ or rectum are not removed, the development of colonic/ rectal cancer is almost inevitable, as happened in our case.

The first description of FAP was given by Chargelaigne in 1859 and its Mendelian dominant trait was recognized and reported by Harrison Cripps during 1882. In 1890 Handford mentioned the association of intestinal cancers with FAP (1). Patients with FAP are born with a germ line mutation in the APC gene on the long arm of chromosome 5q(21-22). It is inherited as autosomal dominant with incomplete penetrance (2). Tumors(benign/malignant) frequently develop in other organs as well as in the colon and rectum. For example gastric polyps mainly fundic gland polyps occur in 30-100% of patients whereas gastric adenomas are relatively uncommon (approximately 5% cases) (3). Duodenal adenomas mainly in the region of periampullary region occur in 60-90% of FAP patients and the incidence increases with age. The occurrence of duodenal periampullary cancer also has been reported and has 4-12% incidence. Jejunal adenomas have been detected in 40% patients. Lymphoid hyperplasia may present in the ileum of patients with FAP (1,3,4).A Korean study has found the incidence of gastric cancer as 2.7% and duodenal cancer as 0.7% in FAP patients (5). In our case the patient's father had carcinoma of the stomach. In 80% of patients with FAP, there is family history of polyps and or colorectal carcinoma, while 20% occurrence is due to spontaneous germ line mutations without prior family history (6).The importance of screening family members for intestinal neoplasm by endoscopy and genetic testing maybe helpful in detecting these lesions early whenever there is a family history of gastrointestinal tract neoplasm, which unfortunately never happened in our patients case.

These are several extra-intestinal manifestations in patients with FAP syndrome. It can be combined with benign soft tissue tumors and osteoma. A particular serious outcome is the development of diffuse mesenteric fibromatosis also called as desmoids tumor and reported in 4-32% of patients (7). In addition other soft tissue tumors described in FAP syndrome include epidermoid cyst, fibromas and lipomas. Neoplasms of the adrenal, CNS, liver, biliary tract, thyroid and pancreas cancer may occur in patients with this syndrome. Gardner's syndrome(Colonic adenomatous polyposis, Osteomas, Soft tissue tumors- Epidermoidcysts, Fibromas and Desmoid tumors) andTurcots syndrome(intestinal polyposis and CNS tumors - most commonly glioblastoma multiforme (GBM), or medulloblastoma) are associated with FAP. Congenital hypertrophy of theretinal pigment epithelium (CHRPE) is a patch of discoloration in the ocular fundus and is seen in few patients, but is not specific for FAP (8-9).

The GISTs are mostly seen in the stomach (40-70%) followed in the order of frequency by small intestine and associated mesentery(20-40%) and colon, rectum, esophagus(<5%). Small GISTs are often detected incidentally. On immunohistochemistry, GISTs are positive for c-KIT. FAP has rarely been seen along with GIST (10).In our case although the small intestinal tumor resembled GIST on histopathology, it was proved to be of neurogenic origin on immunohistochemistry. Schwannomas are rarely encountered in the small bowel. Neurofibroma and malignant peripheral nerve-sheath tumors (MPNST) involving the small bowel usually occur in patients with neurofibromatosis (von Recklinghausen's disease) (11). Our patient did not

have cutaneous or other manifestations of neurofibromatosis. There is no known association of FAP with Malignant peripheral nerve sheath tumors (MPNST) as published in a study by Evans et al in 2012(12).We were unable to find any published study of the association of neurogenic tumors of the small bowel with FAP. This made our case interesting.

For the better management of the FAP families and patients, early diagnosis is vital. Previously patients or family members of high risk FAP families were regularly screened using either colonoscopy or sigmoidoscopy with annual follow-up. Now a days,the best diagnostic tool available is genetic testing, which enables early detection of the FAPpredisposition, even before the appearance of polyps in the colonic lumen. These genetic tests involve the isolation of the genomic DNA from the tissue or blood of the potential high risk patients, which is then subjected to analysis of APC gene mutations using the PCRtechnique (13-14).

Conclusion:

Early diagnosis and prompt management is very essential in patients and family members in cases of FAP.

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