

Giant tubular adenoma with malignancy clinical characteristics in a female teenager

Case report and a review of the literature

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Abstract

Background: Adenomas of the colon are usually benign tumors which carry a tendency for malignancy. These tumors can be villous, tubular, tubulovillous, or sessile serrated. Those with adenomatous structure can develop malignant characteristics in 1.5% to 9.4% of cases.

Methods: We present a case report of a 16-year-old female adolescent with an adenoma of the descending colon. History revealed prolonged diarrheic syndrome for the past 6 months, repeated headache, and a weight loss of ~5 kg in the past month. One week before the admission, the patient presented an episode of inferior digestive hemorrhage.

Results: On admission laboratory tests revealed iron deficiency anemia, and a mildly increased erythrocyte sedimentation rate. The abdominal ultrasound revealed an inhomogeneous mass of the descending colon and 2 hyperechoic lesions in the liver. The colonoscopy showed a tumor of the descending colon, a tubular adenoma according to the pathological examination. Additionally, we noted an atypical presentation of the tumor and the signs of mild dysplasia identified at the pathological examination.

Conclusion: Weight loss, bowel transit alterations, loss of appetite, and inferior hemorrhage in an adolescent can be symptoms of a benign or malignant tumor of the colon.

Abbreviations: APC = adenomatous polyposis coli, CT = computer tomography, EEG = electroencephalography, ESR = erythrocyte sedimentation rate, Hb = hemoglobin, Htc = hematocrit, MRI = magnetic resonance imaging.

Keywords: benign, child, malign, tubular adenoma

1. Introduction

Adenoma of the colon is a type of polyp, usually of benign nature, formed by glandular tissue.^[1] Depending on the pattern of growth these tumors can be villous, tubular, tubulovillous, or sessile serrated.^[1] In comparison to non-adenomatous polyps, those with adenomatous structure can develop malignant characteristics. According to clinical, pathological, and epidemiological data, the incidence of adenocarcinomas of the colon developing from adenomas is approximately 1.5% to 9.4%, and the transformation process can take between 8 and 10 years,^[2,3] being mainly related to their size, morphology, and pathological type.^[4] Usually, these benign tumors appear in the rectosigmoid area, and very rarely

in the proximal colon.^[5] Between 2% and 15% of cases can present the coexistence of adenomas and adenocarcinomas, in addition to juvenile polyps.^[6] Hereditary polyposis syndromes represent another important clinical context that should be taken under consideration by every physician in order to properly evaluate a patient with polyps.^[6] Among these hereditary conditions, we recall familial adenomatous polyps which are usually asymptomatic during the first decade of life, the condition being characterized by >100 adenomatous colonic polyps involving the entire gastrointestinal tract.^[7] Another hereditary polyposis syndrome worth mentioning is the Peutz-Jeghers syndrome, a rare inherited autosomal dominant condition defined by the association between mucocutaneous pigmentation, hamartomatous polyposis, and a high risk of cancer development.^[8] The most frequent clinical presentation in benign colon tumors is inferior digestive hemorrhage, but symptoms of partial bowel occlusion can also be associated. The diagnosis is established by colonoscopy, and the type of the tumor is identified by pathological examination. The colonoscopy must be extended to the entire colon in order to exclude the presence of multiple adenomas. Treatment usually consists in resection through colonoscopy. The follow-up for multiple adenomas, those with increased size or with signs of dysplasia, includes a colonoscopy at 6 months after the removal of the tumor, even though a study that evaluated the recurrence rate within the 3 years after the removal of the polyp showed a rate of 21.3% in case of enlarged size (over 15 mm)^[9] tumors.

We present a case report with the *aim* of revealing the clinical symptoms that can suggest the presence of a colonic tumor, which can be malignant or nonmalignant.

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Figure 1. Aspect of the colonic tumor at abdominal ultrasound.

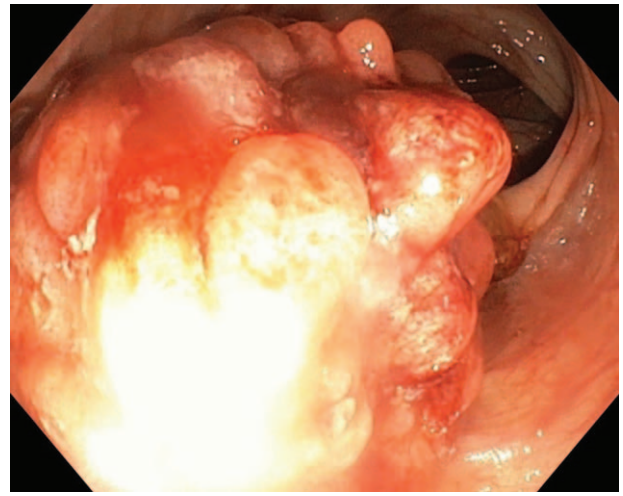


Figure 3. Endoscopic aspect of the tumor.

Informed consent was obtained from the patient's mother (legal guardian) for publication of this case report.

2. Case report

2.1. Presenting concerns

A 16 years and 11 months old female adolescent was referred to our clinic due to the fact that she presented weight loss (~5 kg in the previous month), prolonged diarrheic syndrome (in the past 6 months), repeated headache, and an episode of inferior digestive hemorrhage 1 week before admission. The family history revealed the fact that the maternal grandfather died of rectal carcinoma.

2.2. Clinical findings

The pathological elements revealed by the clinical examination performed on admission were as follows: pallor of the skin and mucosa, painful abdomen at palpation in the left side and iliac

fossa, where a solid, adherent mass, of ~3 cm in diameter was observed. Associated symptoms were loss of appetite and stools with modified consistency.

2.3. Diagnostic focus and assessment

The laboratory tests revealed iron deficiency anemia (Hb 9.2 g/dL, Htc 29.8%, Iron 4.62 $\mu\text{mol/L}$) and a mildly increased erythrocyte sedimentation rate: 19 mm/h. The abdominal ultrasound revealed an inhomogeneous lesion at the level of the descending colon, with presence of Doppler signal, sized ~6.9/4.9 cm, and in the left lobe of the liver we noticed 2 hyperechoic lesions of ~6.5/6.4, and 5.3/4.3 mm, respectively, well delimited, without Doppler signal (Figs. 1 and 2). Taking under consideration the clinical presentation and the laboratory findings, it was mandatory to exclude the following conditions in order to establish a proper diagnosis: fecaloma or different types of tumors such as: intestinal lymphoma, retroperitoneal tumor, mesenteric giant cyst, and kidney tumor.

The inferior digestive endoscopy showed a lobular tumor in the descending colon, which bled easily, with white nodules in the



Figure 2. Aspect of the 2 hyperechoic lesions in the liver at ultrasonography.

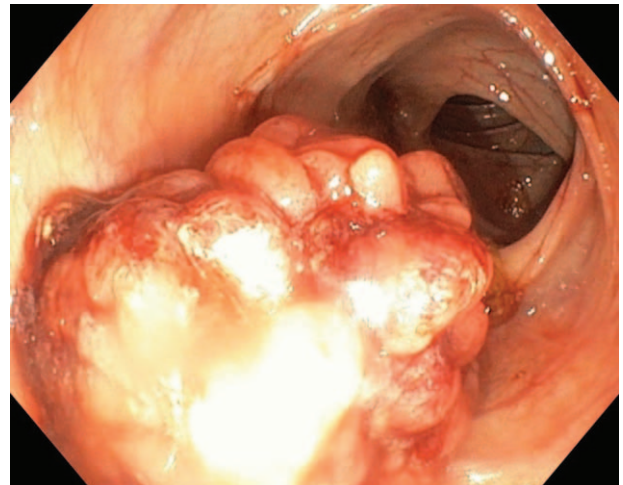


Figure 4. Endoscopic aspect of giant polip.



Figure 5. Abdominal CT aspect of the descending colon tumor (sagittal section).

colonic mucosa surrounding the tumor (Figs. 3 and 4). We took multiple biopsies from the tumor and the surrounding mucosa in order to perform a pathological examination. We also examined the entire large bowel to exclude the presence of other tumors.

Due to the fact that clinically and paraclinically this tumor presented certain features of malignancy, such as weight loss, intestinal transit disorders, anemia, and the 2 hyperechoic hepatic lesions which could suggest liver metastases, we performed an abdominal and pelvic CT where we noticed an intracavitary space-replacing process in the descending colon, with stenosis characteristics, of ~30/29/53mm in size, without obvious involvement of the adipose subserous tissue, inhomogeneous iodophil; in the liver, we observed a focal image with a size of 3 mm, hypovascularized after contrast application, aspect suggestive for hepatic hemangioma (Figs. 5 and 6). We also performed an EEG exam which pointed out focal modifications; therefore, we performed a cerebral MRI in order to reveal a possible expansive intracerebral process, but fortunately it was normal. We additionally requested serum copper, carcinoembryonic antigen, and alpha-fetoprotein determination but all were in normal range. The pathological examination revealed epithelial proliferation, with tubular architecture, covered by a pseudostratified epithelium, with enlarged, hyperchromic nuclei and aspect of mild (low degree) dysplasia and vascular congestion. The proliferation index Ki67 was positive on the surface and in the subjacent tubular structures. The pathological examination of the surrounding colonic mucosa revealed only lymphoid agglomerations, without activity phenomena. Thus, the pathological examination revealed the tumor mass to be tubular adenoma of the colon, with mild dysplasia.

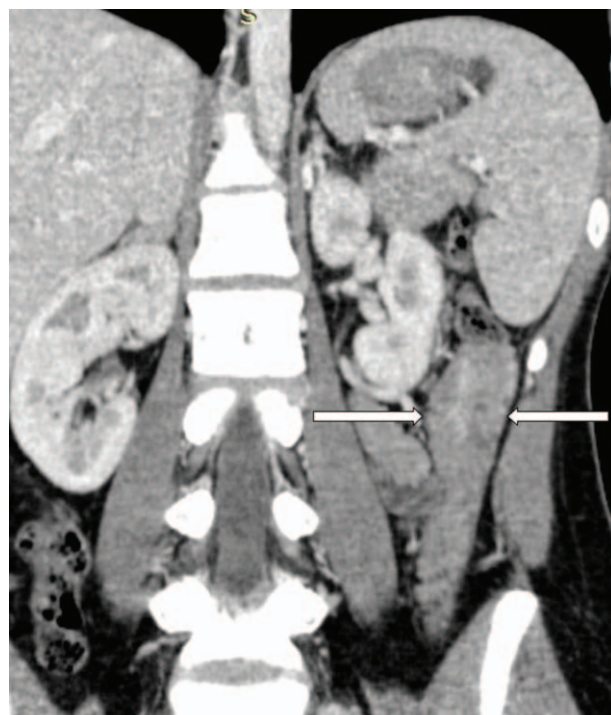


Figure 6. Abdominal CT aspect of the descending colon tumor (coronal section).

2.4. Therapeutic focus and assessment

The treatment consisted in removal of the adenoma during colonoscopy through electrocauterization. The pathological examination performed after the removal of the entire adenoma showed no additional information.

2.5. Follow-up and outcome

The evolution of our patient was without unexpected or unfavorable events. We recommended another colonoscopy after 6 months due to the unusual localization of the adenoma, its large size, and also the signs of mild dysplasia revealed by the pathological examination.

3. Discussions

Adenomatous polyps of the colon are premalignant lesions, with a 1.5% to 9.4% incidence of developing into adenocarcinomas, the process of malignant transformation having a variable length, between 8 and 10 years.^[2,3] Even though the rate of oncogenesis process is not very frequent, cases of adenocarcinomas in children have been reported, between the age of 9 months and the age of 15 years.^[1] Recently, a case of a 17-year-old male adolescent who presented recurrent abdominal pain, nausea and mildly loose stools was described, similar to our patient, and who was diagnosed with adenocarcinoma of the ascending colon.^[10] The risk of malignancy increases with the size of the polyp; therefore, those with an increased size carry a higher risk of malignant transformation, and also a family history of colon cancer leads to an increased susceptibility toward developing adenocarcinomas.^[11] Our patient had a positive family history for rectal cancer, and also the adenoma was giant, bigger than 2 cm, similarly to those defined by other studies.^[8] In a study performed

by Andrade DO on 233 children, in 2 reference centers, 74% were identified with juvenile polyps, among 35% with intestinal polyposis syndromes.^[6] Familial adenomatous polyposis, defined by innumerable adenomatous polyps in the entire gastrointestinal tract,^[6] is usually diagnosed in a context of a positive familial history.^[12] Even though the adenomatous polyposis coli (APC) gene seems to be involved in the development of familial adenomatous polyposis, “new mutations” have also been described in up to 30% of patients with this condition, the average age of cancer development being 29 years.^[12] Juvenile polyposis syndrome is an autosomal dominant condition, characterized by multiple juvenile polyps that can occur in the entire gastrointestinal tract, but are more often in the colon.^[12] Up to 60% of patients with this condition have been identified with genetic mutations, involving the SMAD4 or BMPR1A^[13,14] genes. The risk of developing cancer is also present in patients with juvenile polyposis syndrome, especially in the third decade of life.^[15] The Peutz-Jeghers syndrome, characterized by the association between mucocutaneous pigmentation, hamartomatous polyposis and an increased risk of cancer development is caused by a germ-line mutation in the STK11 gene, located on chromosome 19.^[8] Patients diagnosed with this disorder present a high risk for developing not only gastrointestinal cancer, but also ovarian, testicular, breast, pancreas, lung, and uterine cervix neoplasms.^[16] In most cases the location of these tumors is the rectosigmoid. However, one-third develop in the descending colon, proximal to the splenic flexure, similar to our case, with only 12% appearing in the proximal colon.^[5] The most frequent symptoms developed by patients diagnosed with colonic polyps are rectal bleeding, prolapsing rectal mass, abdominal pain, mucopurulent discharge, diarrhea, and vomiting, even though cases of asymptomatic patients have been reported.^[17,18] Our patient presented only 1 episode of rectal bleeding, but she also complained of prolonged diarrhea. A study performed on 1537 asymptomatic patients showed a prevalence of advanced neoplasia, which included cancer or a tubular adenoma, traditional serrated adenoma or sessile serrated adenoma with villous characteristics, and/or high-grade dysplasia and/or diameter ≥ 10 mm, of 6.8%.^[19] The treatment is usually electrocautery removal performed through colonoscopy, like in our case. A rare, but important complication of giant polyps can be intussusception, as in the 2 cases presented by Avandipo.^[20] Other complications encountered in the case of undiagnosed or untreated polyps can be prolonged diarrhea, as in the case we presented above, anemia through repeated blood loss in the stools and even bowel occlusion in very rare cases.^[21] The early diagnosis is essential due to the risk of degeneration into a malignant process. Prior studies showed that the recurrence of a single polyp is usually rare.^[22] However, more recent studies underline that there is a rate of 17% for the recurrence of single polyps.^[23] Also, it seems that the degree of dysplasia together with the number and size of the adenoma are important factors in the prediction of the recurrence rate.^[9] Therefore, according to a study performed on 3360 patients, the recurrence rate within the 3 years after polypectomy was 4.2% in the case of a single polyp with the size ≤ 15 mm, without high-grade dysplasia.^[9] With regard to patients with colorectal adenomas, the same study underlined a recurrence rate of 21.3% in patients with colorectal adenomas without high-grade dysplasia and > 15 mm, or in those with high-grade dysplasia and ≤ 15 mm, and also in the case of multiple adenomas without high-grade dysplasia and ≤ 15 mm,^[9] although the percentage raised to 57.9% in the case of high-grade dysplasia > 15 mm.^[9] Therefore, we can speculate

that our patient has a recurrence risk of 21.3%. Also in the same study, in the 746 patients with colorectal adenomas, the median tumor size was 16 mm, ranging between 8 and 34 mm,^[9] smaller than the adenoma discovered in our patient. The surveillance of families with adenomas includes an yearly screening colonoscopy, beginning with the age of 10 to 12 years.^[12] Due to these facts, we think it is appropriate to repeat the colonoscopy in our patient after 6 months. Additionally, we noted an atypical presentation of the tumor and the signs of mild dysplasia identified at the pathological examination.

4. Conclusions

Weight loss, bowel transit alterations, loss of appetite, and inferior hemorrhage in an adolescent can be symptoms of a benign or malignant tumor of the colon.

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