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Intra-abdominal fibromatosis following laparoscopic surgery for sigmoid colon cancer: A case report

Rayhana Charif Saibari, Hamza Hafiani, Amrani Chaimae, Anas Idrissi, Amal Rami

ABSTRACT

Introduction: Desmoid tumors, also known as aggressive fibromatosis, are rare, benign, non-inflammatory, and fibroblastic tumors. Characterized by their locally aggressive behavior and the potential for recurrence, these tumors do not metastasize. Intra-abdominal desmoid tumors comprise 8% of all desmoid tumors.

Case Report: This paper presents a case of a 50-year-old male, highlighting the diagnostic challenge posed by the incidental discovery of an intra-abdominal mesenteric mass in a patient previously treated for stage I sigmoid colon cancer by laparoscopic proctocolectomy. Multidisciplinary consensus favored surgical intervention, successfully revealing and removing a benign desmoid-type fibromatosis. The occurrence of intra-abdominal desmoid tumors after laparoscopic surgery for colorectal cancer is exceptionally rare, underscoring the unique nature of this case.

Conclusion: During post-operative follow-up for colon cancer, the discovery of an intra-abdominal mass is often initially regarded as a sign of cancer recurrence and metastasis. Radiologists and oncologists may not immediately consider alternative causes. The incidentally discovered desmoid-type fibromatosis emphasizes the necessity for vigilant monitoring and consideration of diverse pathologies during follow-up, especially in low-risk scenarios.

Keywords: Abdominal CT, Colectomy, Colon cancer, Desmoid tumors, Intra-abdominal fibromatosis

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INTRODUCTION

Desmoid tumors or aggressive fibromatosis are benign, non-inflammatory, fibroblastic tumors. They are benign tumors exhibiting infiltrative growth and a tendency for recurrence [1], with no metastatic potential. They are rare, accounting for only 0.03% of all neoplasms and less than 3% of all soft tissue tumors [2].

The occurrence of intra-abdominal desmoid tumors after laparoscopic surgery for colorectal cancer is exceptionally rare, underscoring the unique nature of this case.

Intra-abdominal desmoid tumors comprise 8% of all desmoid tumors and usually occur after conventional laparotomy. Intra-abdominal desmoid tumors have also been reported to occur after laparoscopic resection of colorectal cancer [3].

Associated conditions include familial adenomatous polyposis (FAP), Gardner's syndrome, trauma, hormonal imbalance and prior surgery [1].

Following radical surgery of malignant tumors, a growing abdominal mass is generally considered as evidence of recurrence and metastasis, while other diseases are rarely considered [4].

In this paper, we report a case that highlights the diagnostic dilemma arising from an incidental discovery of an intra-abdominal mesenteric mass in a patient under surveillance for stage I sigmoid colon cancer associated to diffuse colon polyps treated earlier by laparoscopic proctocolectomy.

CASE REPORT

Patient's history

We present a case involving a 50-year-old male, married with four children, who had a family history of colorectal cancer.

In February 2020, the patient underwent a colonoscopy due to recurrent episodes of rectal bleeding over a three-month period.

The colonoscopy revealed a tumor in the sigmoid colon, along with diffuse polyposis. Approximately 30 colon polyps were observed, distributed throughout all segments of the colon, displaying an adenomatous appearance. The rectum and lower sigmoid were free of these polyps.

Pathological examination confirmed the presence of a well-differentiated adenocarcinoma in the sigmoid region.

The initial thoraco-abdomino-pelvic computed tomography (CT) scan indicated thickening of the sigmoid colon wall without evidence of local fat infiltration or lymph node involvement. No metastases were detected during this evaluation. Furthermore, tumor markers, including carbohydrate antigen CA19-9 and carcinoembryonic antigen (CEA), exhibited normal levels.

On March 19, 2020, the patient underwent laparoscopic proctocolectomy with preservation of the middle and lower rectum. A low ileorectal anastomosis was performed, and a protective ileostomy was created. No abnormalities were detected in the middle and lower rectum.

Post-operative pathology analysis revealed a well-differentiated adenocarcinoma limited to submucosa and muscularis propria, along with multiple polypoid lesions distributed throughout various segments of the colon, displaying moderate and high-grade dysplasia.

Importantly, no lymph node metastases were detected, with all 15 nodes examined showing no signs of cancer spread (0/15). The pathological staging of the tumor was classified as pT2N0M0, indicating stage I sigmoid colon cancer. Consequently, no additional treatments such as adjuvant chemotherapy were considered necessary.

Due to our patient's presentation of diffuse polyposis and a family history of colon cancer, FAP was initially suspected. An oncogenetic consultation was proposed to the patient, but genetic tests returned negative, indicating the absence of any pathogenic variants. Subsequently, on June 2, 2020, the patient underwent laparoscopy to restore ileal continuity. No imaging examination was indicated.

Diagnosis

In February 2021, the oncologist recommended a thoraco-abdomino-pelvic CT scan for follow-up purposes, which revealed a right-sided intra-abdominal mesenteric mass. This mass exhibited a nodular appearance with uniform soft-tissue density, and without calcifications (Figure 1). It made contact with an adjacent intestinal loop and displayed infiltrative margins, although there were no indications of invasion into surrounding structures (Figures 1–3). It was located away from the previous ileorectal anatosmosis (Figure 3), and measured 58 × 50 mm.

No lymph node metastases, hepatic lesions, or other abnormalities were detected on the CT scan. Additionally, the patient's tumor markers, including carbohydrate antigen CA19-9 and carcinoembryonic antigen (CEA), were within normal ranges.

The patient's case was thoroughly discussed during a multidisciplinary team meeting. The consensus was that the mass was likely benign, possibly indicative of intra-abdominal fibromatosis. However, the possibility of locoregional recurrence in the mesentery could not be ruled out without histological confirmation. Therefore, the recommendation was to perform a complete surgical removal of the mass, a procedure considered feasible with the option of a frozen section for immediate examination.

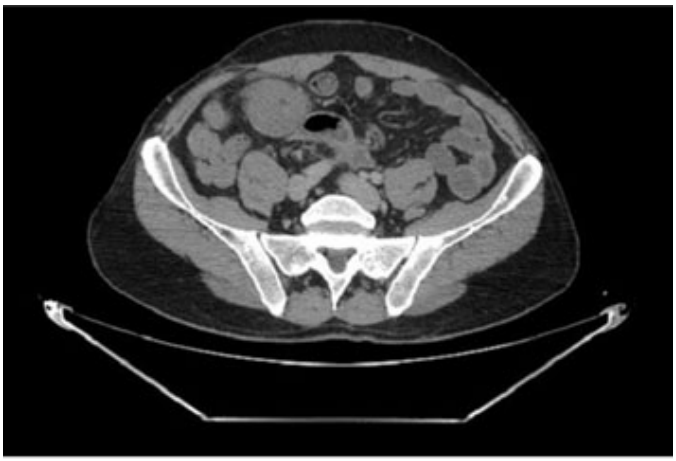

Figure 1: Axial abdominal computed tomography (CT) scan at one year post-surgery, revealed a nodular right-sided mesenteric mass with soft-tissue density.

Figure 2: Coronal abdominal CT displaying a nodular homogeneous right-sided abdominal soft-tissue mass, with infiltrative margins in contact with the adjacent intestinal loop.

Figure 3: Sagittal abdominal CT showing the mesenteric mass.

Treatment and follow-up

During the laparoscopic examination, it was observed that the mass was located within the ileal mesentery and closely adhered to the neighboring intestinal loop (Figure 4). Furthermore, it was in proximity to the superior mesenteric artery and vein but did not invade these structures. Importantly, there was no invasion of adjacent organs. No evidence of lymph node metastases, peritoneal carcinomatosis, or hepatic metastases was identified. Pathological assessment during surgery initially diagnosed the mass as a desmoid tumor. Consequently, the surgeon performed a complete resection of the mesenteric mass, achieving clear pathological margins (R0-resection), along with the adjacent segment of the small intestine and conducted an end-to-end anastomosis between the proximal and distal ileum.

The mass measured approximately 6 cm (Figure 5). The surgical specimen retrieved consisted of a section of the small intestine with an adjacent mesenteric mass displaying a solid cut surface, exhibiting colors of brown-red and grayish-white in the cross-section (see Figure 6). The post-operative recovery of the patient was uneventful. The final pathological diagnosis identified the mass as a desmoid-type fibromatosis. Subsequently, at the 6-month post-surgery follow-up, a thoraco-abdomino-pelvic CT scan was indicated and revealed the absence of any intra-abdominal mass or abnormalities (Figures 7 and 8).

To monitor for potential local recurrence of the desmoid tumor, we continue to conduct vigilant follow-up assessments, alternating between CT and magnetic resonance imaging (MRI) examinations. As of a two-year and half follow-up period, there has been no recurrence of sigmoid colon cancer or desmoid tumor detected.

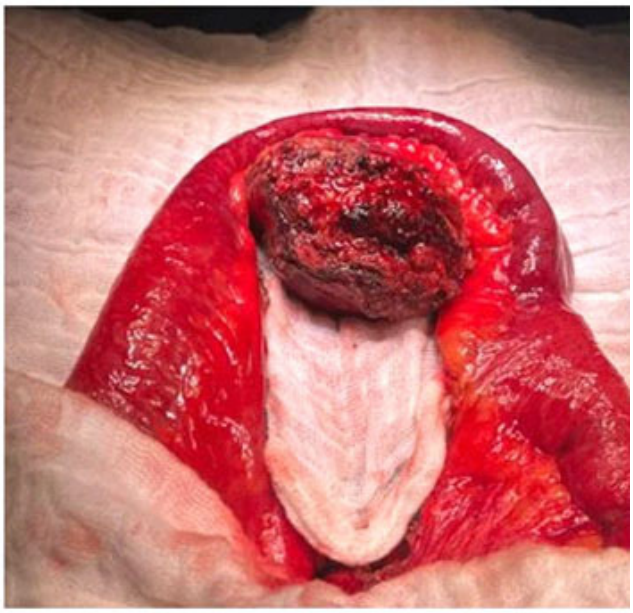

Figure 4: Per operative view of a rounded mesenteric mass identified within the intra-abdominal space, firmly adhering to the adjacent intestinal loop.

Figure 5: Surgical specimen comprising a segment of small intestine, along with the 6 cm ileal mesenteric mass.

Figure 6: Macroscopic findings of the resected specimen: Whitish fibrous and firm cut surface.

Figure 7: Sagittal abdominal CT scan illustrating the absence of the mesenteric mass and highlighting the ileo-ileal anastomosis.

Figure 8: Coronal abdominal CT scan illustrating the absence of the mesenteric mass and highlighting the ileo-ileal anastomosis.

DISCUSSION

Intra-abdominal desmoid tumor is a benign condition resulting from an abdominal proliferation of myofibroblasts [5]. Although desmoid tumors do not metastasize, they are locally invasive and their propensity for recurrence after conservative resection is well documented [6]. Associated conditions include FAP, Gardner's syndrome, trauma, hormonal imbalance and prior surgery [1]. Clinical symptoms, based upon the mass size, number, and location, vary from vague abdominal discomfort, abdominal distension, and pain, although the most common symptom is an asymptomatic abdominal mass [4]. Desmoid tumor after colectomy for sporadic colorectal is a rare entity [5]. Desmoid tumor after laparoscopic surgery may be even rarer than that after conventional laparotomy [5].

Imaging studies, such as CT and MRI, are used for pre-operative diagnosis with evaluation of the exact tumor size, location, and infiltration of the surrounding tissues.

The typical appearance of an intra-abdominal desmoid tumor on CT is that of a well-circumscribed solid soft tissue mass, without calcifications [1]. Although imaging of the desmoid tumor is a characteristic, it can be very difficult to distinguish between recurrence and intra-abdominal desmoid tumor or other neoplasms and only pathological examination can confirm the diagnosis. If feasible, surgical resection with a wide margin is the conventional treatment of choice for symptomatic desmoids [6]. Often, resection is not possible because of close association with vital structures, in which cases, systemic therapy with or without surgical excision should

be considered [7]. Nonsurgical treatment options include radiation and systemic therapy.

Radiation has been reported to be comparable to surgery and is also useful as an adjuvant treatment to reduce the risk of local recurrence [7]. Close follow-up by imaging is also essential given the high recurrence rate despite effective treatment [2]. In this paper, we report the case of a middle-aged patient who had previously underwent successful laparoscopic proctocolectomy for stage I sigmoid colon cancer (pT2N0M0) associated to multiple colon polyps. An incidental discovery of an intra-abdominal mesenteric mass occurred during the follow-up CT scan one year after surgery.

Approximately, 10% of colorectal cancer patients present with stage I disease. For these patients, the 5-year survival rate is about 90% [8]. Therefore, the probability of malignant recurrence in an early-stage colorectal cancer following radical surgery is uncommon.

For all these reasons, the multidisciplinary team meeting (MDT) qualified the mass as probably benign but did not rule out malignancy without histological proof. They recommended complete surgical resection of the mass since feasible with a frozen section procedure. The post-operative pathological diagnosis confirmed the benign nature of the mass.

CONCLUSION

In conclusion, we presented a case involving the incidental discovery of an intra-abdominal mass during a follow-up CT scan of a middle-aged male patient, who had undergone laparoscopic surgery 18 months earlier for stage I sigmoid colon cancer. Following a multidisciplinary meeting, we considered surgical resection the optimal course of action to confirm the nature of the mass. Prior to receiving the pathological diagnosis of fibromatosis, our medical team encountered a diagnostic challenge when faced with the appearance of an intra-abdominal mass in a patient who was being monitored for sigmoid colon cancer. This case report emphasizes the importance of considering desmoid fibromatosis as a potential differential diagnosis when encountering an intra-abdominal mass during post-operative follow-up for colon cancer, particularly in cases where the risk of cancer recurrence is low.

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Author Contributions

Rayhana Charif Saibari – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Hamza Hafiani – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Amrani Chaimae – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Anas Idrissi – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related

to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Amal Rami – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Guarantor of Submission
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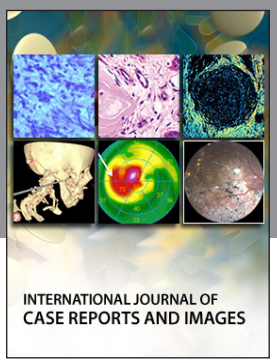
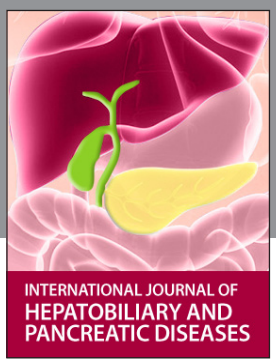
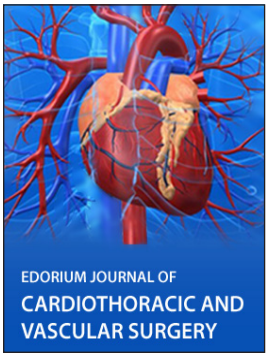
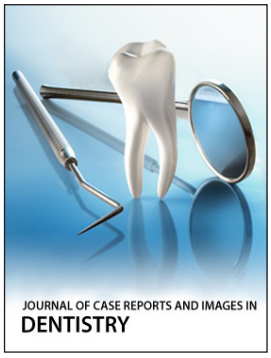
Conflict of Interest
Authors declare no conflict of interest.

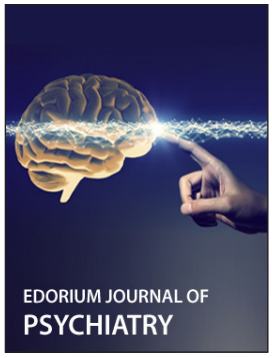
Data Availability
All relevant data are within the paper and its Supporting Information files.

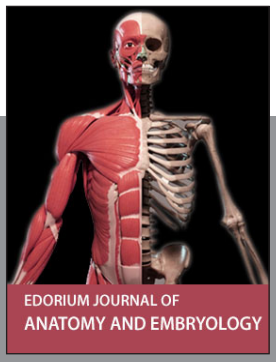


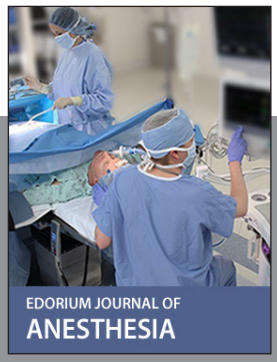












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