**Original Article / *Klinik Çalışma - Araştırma***

# Lipoma of the Large Intestine: A Clinicopathological Review of Six Cases

*Kalın Barsak Lipomu: Altı Olgunun Klinikopatolojik Değerlendirilmesi*

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**Objectives:** Symptoms of colonic lipomas generally have a silent clinical course. We presented the clinical features, treatment methods, and follow-up results of six cases with large bowel lipoma.

**Patients and Methods:** A retrospective review of patients with a diagnosis of large bowel lipoma between January 2000 and December 2006 was conducted. Data related to presentation, diagnosis, surgical treatment and pathology were analyzed.

**Results:** Six patients (4 men, 2 women; mean age 63 years; range 43 to 82 years) were operated on due to lipoma of large intestine. Abdominal pain was the most common presenting complaint. One of the patients was treated urgently due to colo-colonic intussusception and the others were operated in elective conditions. The endoscopic biopsies were inconclusive. The preoperative diagnosis was colonic lipoma in two patients and four patients were treated due to suspected tumor of the colon. The locations of the lesions were ascending and transverse colon in two patients, cecum and sigmoid colon in the others. Right hemicolectomy was performed in three patients, left hemicolectomy, sigmoid and segmenter colon resections were performed in the others. Histopathologic examinations of the resected materials showed submucosal lipoma of the large intestine. Postoperative period was uneventful in all of the patients.

**Conclusion:** In large symptomatic colonic lipomas that can cause obstruction or hemorrhage, surgical treatment is needed to prevent complications and to exclude the possibility of malignancy.

*Key words:* Lipoma; large intestine.

**Amaç:** Kolon lipomlarının semptomları genellikle sessiz bir seyir gösterir. Bu çalışmada kalın barsak lipomu olan altı olgunun klinik özellikleri, tedavileri ve takip sonuçları literatür eşliğinde sunuldu.

**Hastalar ve Yöntemler:** Ocak 2000 ile Aralık 2006 yılları arasında kalın barsak lipomu teşhisi konulan hastalar, klinik özellikleri, teşhis yöntemleri, cerrahi tedavileri ve patolojik sonuçları açısından retrospektif olarak değerlendirildi.

**Bulgular:** Toplam altı kalın barsak lipom olgusu (4 erkek, 2 kadın; ort. yaş 63; dağılım 43-82) ameliyat edildi. En sık bulunan semptom karın ağrısı idi. Hastaların beşi elektif olarak ameliyat edilirken, bir olgu kolokolik intussusepsiyona ikincil olarak acil şartlarda ameliyat edildi. Endoskopik biyopsilerle bir sonuca varılamadı. Ameliyat öncesi klinik tanı iki olguda kolon lipomu iken, dört olgu kolon tümörü şüphesiyle ameliyat edildi. Lipom lokalizasyonları ikişer olguda asendan ve transvers kolonda, diğer olgularda çekum ve sigmoid kolonda idi. Hastaların üçüne sağ hemikolektomi, diğer hastalara sol hemikolektomi, sigmoid ve segmenter kolon rezeksiyonları uygulandı. Cerrahi sonrası komplikasyon gelişmeyen hastalarda histopatolojik inceleme sonucu kalın barsakta submukozal lipom olarak rapor edildi.

**Sonuç:** Büyük, semptomatik kolon lipomlarında gerek malignite kuşkusunu ekarte etmek, gerekse de barsak tıkanıklığı ve kanama gibi komplikasyonları engellemek için cerrahi tedavi gereklidir.

*Anahtar sözcükler:* Lipom; kalın barsak.



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Gastrointestinal lipomas are benign, usually single, slowly growing nonepithelial tumors. Their occurrence is most common in the colon, but they can also be found in the esophagus, small bowel, and very rarely in the stomach.[1,2] Lipomas are the second most common benign colonic tumor after adenomatous polyps.[3] Most of these tumors remain entirely asymptomatic and are usually detected either by chance during the investigation of symptoms apparently deriving from the large bowel or are found in a large bowel specimen removed for some other reasons. When colonic lipomas achieve a proper size, they have manifestations such as change in bowel habits, rectal bleeding, abdominal pain or more disastrous consequences like obstruction and intussusception requiring urgent interventions.[4,5] This study reviews the presentation, management and follow-up of our patients with large bowel lipomas.

## PATIENTS AND METHODS

The medical reports of the patients with the diagnosis of large bowel lipoma between January 2000 and December 2006 at two institutions were analyzed retrospectively. We reviewed the clinical features, diagnostic tools, time of surgery (whether emergency or elective), surgical findings, operative procedure, histopathologic findings, postoperative morbidity and long-term outcome. As diagnostic tools, radiological interventions as barium enema, abdominal computerized tomography (CT), and also colonoscopy as endoscopic examination were used.

## RESULTS

A total of six patients with a diagnosis of large intestinal lipomas were identified and there were four men and two women. The median age at the time of diagnosis was 63 years with a range of 43-82 years. Clinical characteristics and operative strategy in patients with large intestinal lipomas are summarized in Table 1. Medical history was present in three patients with diabetes mellitus, two patients with anemia and a patient with coronary artery disease. None had a previous history of abdominal operation. The most common presenting symptom (100%) was abdominal pain. One of six (17%) patients presented with acute intestinal obstruction and was operated under emergency conditions. The other five (83%) patients were admitted to our clinics for unremitting symptoms and treated electively. Two of six (33%) patients were evaluated due to anemia. Investigations included barium enema (one patient), colonoscopy (five patients) and abdominal CT (six patients). Barium enema revealed a smooth surfaced, polypoid mass projecting from lateral wall of transverse colon (Fig. 1). Colonoscopy showed polypoid masses with different sizes (ranges from 3.5x4 cm to 7x5 cm in size), narrowing of lumen with normal mucosa. Abdominal CT showed colo-colonic intussusception due to a lipoma in one patient, a tumoral mass with thickening of bowel wall suggesting a colon carcinoma in four patients, and intraluminal nodular mass with lipid density suggesting a lipoma (Fig. 2) in one patient. The endoscopic biopsies showed normal bowel mucosa that did not help in diagnosis. The diagnosis of large bowel lipomas was made in two (33%) patients. Two of six patients had preoperative diagnosis of colon lipoma; one of them was operated urgently due to colo-

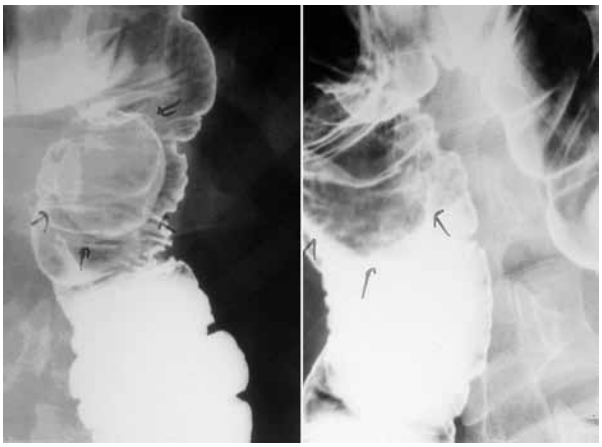

***Fig. 1.*** *Barium enema showed a well circumscribed, smooth, spherical mass (arrows) in the mesenteric site of the transverse colon.*

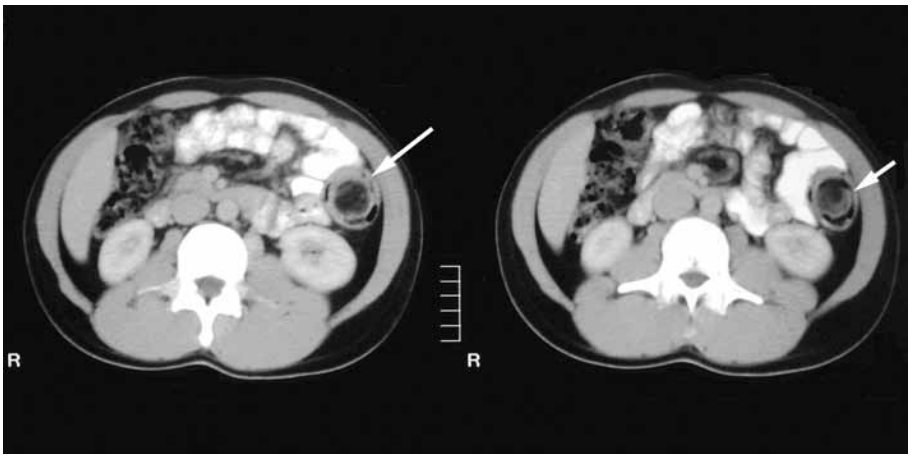


***Fig. 2.*** *Abdominal CT scan revealed a round mass (arrows) within the lumen of the transverse colon; densitometric values consistent with a homogenous fatty lesion establishing the diagnosis of lipoma of the colon.*

**Table 1. Clinical characteristics and operative strategy in patients**

| Case | Symptoms | Abdominal CT | Colon Graphy | Colonoscopy | Site | Surgery |
|---|---|---|---|---|---|---|
| 1 | Abdominal pain, diarrhea | Intraluminal nodular mass, 3x4 cm in size, consisted with lipid density | Polypoid mass with smooth surface originated from lateral wall | Narrowing of colon lumen due to polypoid mass with granular mucosa | Splenic flexura | Elective, left hemicolectomy |
| 2 | Constipation | Tumoral mass with thickening of bowel wall | - | Polypoid mass with normal bowel mucosa, 5x4 cm in size | Sigmoid colon | Elective, sigmoid colon resection |
| 3 | Rectal bleeding | Tumoral mass narrowing the lumen of the bowel | - | Polypoid mass, 3.5x4 cm in size, narrowing the bowel lumen with normal mucosa | Ascending colon | Elective, right hemicolectomy |
| 4 | Abdominal pain | Polypoid mass 7x5 cm in size, protruding to the lumen of the bowel | - | A polypoid mass with normal mucosa filling the lumen of the bowel | Caecum | Elective, right hemicolectomy |
| 5 | Fatique, abdominal pain | Tumoral mass with pseudo kidney appearance | - | Vegetative mass with normal mucosa, 5x5 cm in size | Ascending colon | Elective, right hemicolectomy |
| 6 | Abdominal pain, nausea, vomiting | Colo-colonic intussusception due to lipoma | - | - | Transverse colon | Urgent, segmenter colon resection |

colonic intussusception, and the other was operated electively due to a large, symptomatic colon lipoma which could lead to complications in future. In two patients, preoperative diagnosis was colon adenocarcinoma and a submucosal colon tumor (gastrointestinal stromal tumor or others) in the other two cases. These four patiens were operated electively. The location of the lesions was ascending and transverse colon in each two patients, caecum, and sigmoid in the others. Right hemicolectomy was performed in three patients. Left hemicolectommy, sigmoid and segmenter colon resections were performed in the other patients (Table 1). The macroscopic appearance was typical submucosal lipomas (Fig. 3). The histopathologic examination of the hematoxylin-eosin-stained slides revealed fat cells proliferating in the submucosal zone (Fig. 4). The patients' postoperative period were uneventful and there was no mortality. During a median follow-up period of 42 months (range 18 to 102 months), the patients were free of symptoms and the colonoscopy and abdominal CT revealed that there were no recurrence or metachronous lesion of colon lipomas after one year of surgery in all patients.

## DISCUSSION

Lipomas of the large bowel are uncommon fatty neoplasms with a reported incidence ranging between 0.2-4.4%.[6] The most common sites of lipomas in large intestine are the caecum, ascending colon and sigmoid colon in decreasing frequency; 70% are localized to the right hemicolon. Their size ranges from several mm to 30 cm. The majority of patients are between 40 and 70 years of age. Colonic lipomas are more common in women than in men. Multiple lipomas are noted in 10-20% of cases particularly when a lipoma is found in caecum.[6,7] In our cases, there was no multiple lipomas and the most common site of the lesions was ascending colon and transverse colon.

The most frequent symptom in our patients was abdominal pain. Rectal bleeding, fatique, nausea, vomiting, and constipation were also seen. Colicky pain may be due to intermittent intussusception whereas rectal bleeding can occur as a result of ulceration of the overlying mucosa. Severity of the signs and symptoms is attributed to the size of the lesions. Lipomas

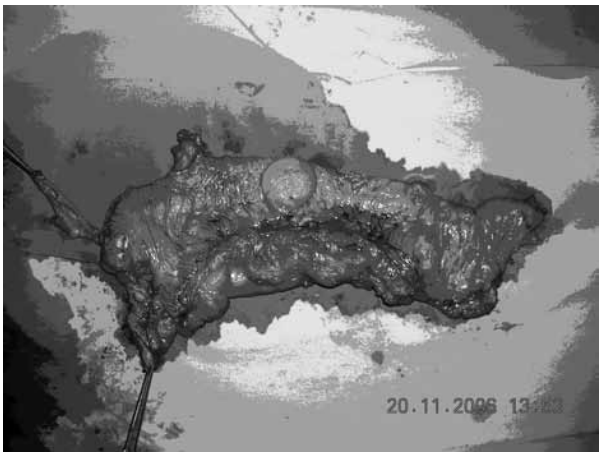


***Fig. 3.*** *Polypoid adipose tissue were seen in central portion of right hemicolectomy specimen.*

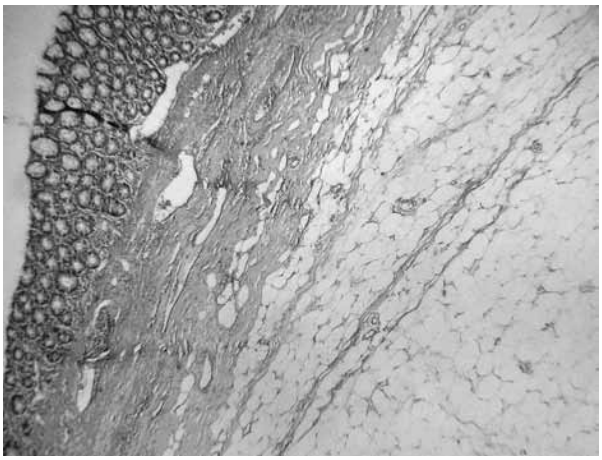

***Fig. 4.*** *Histopathologic examination of the tumor revealed mature adipocytes in the submucosal layer (H-E x 40).*

larger than 2 cm in diameter may cause symptoms such as constipation, diarrhea, abdominal pain, or rectal bleeding. Spontaneous expulsion of a sigmoid lipoma has been recorded.[8-10] Lipomas are the most common benign neoplasms that cause intussusception in adults. In our cases, one patient (16%) presented with colo-colonic intussusception. One of the greatest clinical significances of lipoma is its potential to be confused with colonic malignancies due totheir symptomatologies being similar. In four patients (66%), we could not make preoperative diagnosis exactly and they were operated due to suspicion of colon malignancies. Fortunately, sarcomatous changes in colonic lipomas have not been reported yet.[1,2,6] Pathologically, gastrointestinal (GI) lipomas represent spherical deposit of adipose tissue in the wall of GI tract. Lipomas arise from the submucosa in 90% of cases and from the subserosa and muscularis propria in the remaining cases. A characteristic feature is a shiny yellowish lesion covered by normal mucosa. Polypoid configuration were seen in all cases. In relation to consistency some are firm others are spongy with a "pillow cushion sign" and a minority are soft and flaccid, particulary in the stomach.[2,11,12] In our cases, all lipomas were solitary, firm and submucosal localizations.

Our study which consists of a few cases, shows that diagnosis and treatment for large intestine lipomas are still challenging for clinicians. The results of this study also supports that although lipoma of the colon is a benign pathological entity, a histopathological corelation should be made to exclude any malignancies. The diagnostic tools for the lipoma of colon are considered as radiological (barium enema and abdominal CT) and endoscopic examinations. The radiographic appearance of colonic lipomas may resemble that of carcinomas. Radiolucency of a lipoma, reflective of its fat content has been advanced as a means of identification. "The squeeze sign" is considered pathognomonic for colonic lipomas, and is characterized by the elongation of a spherical filling defect during peristalsis.[1,6] Computerized tomography has been proposed as a non-invasive means of dignosis.[3,6] The CT characteristics of lipoma include a spherical or ovoid shape with smooth, sharply demarcated margins, homogenous density with CT values between –40 and –120 Hounsfield units. Two potential limitations of CT are the size of lipomas and the partial volume averaging with surrounding soft tissues structures or stool, creating artifactually high CT attenuation values.[6,9,11] Abdominal CT was the most helpful diagnostic tool in our cases. In two cases (33%) with preoperative diagnosed colonic lipoma, CT revealed intraluminal nodular mass, consisting of lipid density and colo-colonic intussusception due to lipoma. But in other four cases (66%), abdominal CT findings were suggusting a colon cancer.

The management of symptomatic lipoma is dependent on their size and location with consideration given to the possibility of intussusception if left untreated. Numerous reports have suggested that endoscopic treatment of submucosal tumor is a valid alternative to invasive surgery.[9,13] However, the choice of treatment for GI lipomas is still controversial, because it has been documented that removal of lipomas 2 cm or greater in diameter is associated with a greater risk of hemorrhage and perforation.[5,6] For large pedunculated lipomas, the size of the stalk is more important than the diameter of the lipoma when considering colonoscopic removal. Although the lipomas in our patients were submucosal, they were large at 3.5 cm and 7 cm respectively with broad pedicles. We considered colonoscopic snare polypectomy too hazardous and we decided to operate them.

Surgery is indicated for symptomatic lesions with lipomas larger than 2 cm in size and when a complication (obstruction, intussusception or bleeding) occurs, and for cases in which a carcinoma cannot be excluded with certainty. The way of removal depends on the presentation of the case as an elective or an emergency. A wide range of operative techniques have been described, including enucleation, colotomy and excision and segmental colonic resection. In our cases, the surgical indications were a complication (intussusception in a patient with preoperative diagnosis of lipoma of large intestine), a large, symptomatic lipoma in an electively operated patient, and suspicion of colonic malignancy in the other four patients. Recently, a laparoscopic procedure has been reported as an alternative to laparotomy for selected colorectal lipomas and polyps.[5,9,14,15] Unfortunately, since we have a little experince in laparoscopic colorectal surgery, we chose laparotomy technique in our patients.

As a conclusion, lipoma of the colon is a relatively uncommon clinical entity and might present with symptoms similar to those of colonic malignancies. In large symptomatic colonic lipomas that can cause obstruction or hemorrhage, surgical treatment is needed to prevent complications and to exclude the possibility of diagnosis of malignancy.

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