Lipoma of the coecum with secondary changes of the surface

Our endoscopically and histopathologically well documented case report is about a lipoma of the colon, which is a relatively rare benign mesenchymal tumor found in the large intestine. The lipoma was characterized as a pedunculated polyp in the cecum, intermittently translocating into terminal ileum and obstructing Bauhin’s valve, resulting in clinical symptoms. During patient examination, lipomas present with differential diagnosis challenges due to their close resemble to other disorders, which might occur much more commonly are more probable to be malignant. Furthermore, bigger lipomas can also harbour secondary changes, such as erosion, ulceration, bleeding and necrosis. Although endoscopic and imaging techniques offer assistance in characterizing lipomas, the final diagnosis still relies heavily on the resecting and histologic examination of the entire polypoid/tumor-like outgrowth of the mucosa. Superficial sampling might also lead to misdiagnosis. Our case had inflammatory, erosive and also hyperplastic surface which could have been concluded as a hyperplastic polyp of colon, a much more common occurrence.

KEYWORDS: colon, endoscopy, lipoma, benign mesenchymal tumor, endoscopic surgery, hyperplastic features

CORE TIP: Our case report describes a lipoma, a benign mesenchymal tumor of the colon, which occurs quite rarely, but can mimic more frequently found and possibly malignant polyps. Therefore, differential diagnosis is a crucial importance. The bigger the lipoma is, the higher chance it will harbour secondary changes (inflammation, ulceration, necrosis, hyperplasia), leading to further differential diagnostic complications, especially with superficial sampling. Our pedunculated lipoma had demonstrated hyperplastic/inflammatory changes due to its mobility on the long stalk, emphasizing the importance of a complete resection and histological examination of the entire lesion in order to arrive at the final diagnosis.

Introduction

A diverse variety of benign and malignant lesions can be found in the colorectum. The vast majority of these are of epithelial origin, such as tubulo/villous or serrated adenomas, hyperplastic polyps, juvenile polyps, hamartomas and neuroendocrine tumors. Mesenchymal tumors in the colon and rectum are quite rarely found. These include GIST, leiomyomas, lipomas, schwannomas, perineuromas, ganglioneuromas, granular cell tumor, and different kinds of vascular tumors (1). The histological diagnosis of lipomas is usually straightforward capturing the mature fat cells that proliferate in a benign manner, sometimes accompanied by thick-walled and dilated vessels. The first colonic lipoma diagnosis dated back to 1757 by Bauer. Among benign
potentially mimic the more commonly found epithelial tumors, lipomas are the most common ones with an incidence among the polypoid lesions of the colon ranging from 0.035% to 4.4% (3, 4). Lipomas can be found usually after the 5th decade and can locate anywhere along the GI tract; but, up to 50-90% of cases are located in the right side of the colon (4, 5) and 10% can be multiple (6). Some studies found a slight female predominance (7, 8).

Lipomas usually form a polypoid mass in the GI tract and potentially mimic the more commonly found epithelial counterparts that might reveal a malignant potential thereafter. Therefore, lipomas might cause severe differential diagnostic problems. Basically, the usual roundish shape of the lipomas suggests a benign behaviour; nevertheless, bigger lipomas often harbour profound secondary changes in the body and overlying mucosa such as inflammation, ulceration and necrosis. As polypoid tumors of the GI tract are usually an indication of an endoscopic biopsy, a superficial sampling of the mucosa covering the lipoma might lead to even more differential diagnostic pitfalls, which might be a misdiagnosis/misinterpretation when the sample does not contain enough fatty tissue. In our case report of a relatively big lipoma in the cecum, we would emphasize on the differential diagnostic problems and sampling issues.

### Case report

Screening colonoscopy was performed on a 69 year-old woman. The endoscopy examination revealed a long pedunculated polyp which grew back to the terminal ileum through the Bauhin fold, dividing it into two parts (Figure 1). The long polyp could be pulled back to the colon with a biopsy forceps. An 80 mm long and tender formation became visible which possessed a wide and crass vessel containing stalk (Figure 2, 3). Due to the tenderness, our initial diagnosis was essentially a lipoma. We performed the polypectomy 4 days later; in order to prepare for an incidental complication, on-site surgical intervention was facilitated. After endo-loop placement onto the stalk, the polyp was removed entirely without complication.

### Discussion

Lipomas are typically growing out from the submucosa as sessile polypoid mass, but some can be pedunculated. About 75% of lipomas are asymptomatic and found incidentally at surgery, autopsy or colonoscopy, especially fewer than 2 cm of diameter (2, 4, 8–10). Clinical manifestations of lipomas are usually related to their size and the surrounding tissue. Large lipomas can cause symptoms such as abdominal pain, distension, and bowel obstruction. Microscopically, lipomas are characterized by the presence of mature adipose tissue. The diagnosis is usually made on the basis of clinical and endoscopic findings; however, histopathological evaluation is crucial to confirm the diagnosis and rule out other possibilities. In our case, the histopathological examination confirmed the diagnosis of lipoma, and the indications for surgery were related to the patient’s symptoms and the potential risk of complications. In conclusion, the histopathological diagnosis was that of a hyperplastic polyp (Figure 5). The border of normal submucosa was not identifiable. On the surface, the mucosa was of colonic type, but there was a visible nodule in which several secondary changes were recognized. That is, disseminations by erosion and a mixed type inflammatory reaction were present in the lamina propria and also partly infiltrated into the crypts (Figure 6). Along with this inflammatory reaction and erosion, the crypts showed a relatively minimal decrease in mucin production. Moreover, other elements of atypical inflammation/regeneration have also been observed: (1) nuclear crowding and nuclear activation, and (2) an increased count of Paneth cells was noted elongated structures found in other areas of the crypts (Figure 6), while others showed some serration towards their surface, resembling a picture of a hyperplastic polyp (Figure 5).

In conclusion, the histopathological diagnosis was that of a pedunculated submucosal lipoma. The size and the pedunculation caused a chronic movement (the polyp was found to be translocated into the terminal ileum) and irritation to the mucosa of the polyp, resulting in secondary changes: erosion, inflammations and a reactive hyperplastic reaction on its mucosal surface.

### Additional figures

- **Figure 1:** Endoscopic appearance of the long pedunculated polyp which retracted into the terminal ileum through the Bauhin’s valve.
- **Figure 2:** 30 mm long and tender lipoma which possessed a wide and crass vessel containing stalk.
- **Figure 3:** The stalk of the lipoma contains wide and crass vessel.
- **Figure 4:** Lipoma’s HE stain at low magnification. Under the mucosa the area is filled with “empty-looking” cells, adipocytes with some septa and thick-walled vessels.
- **Figure 5:** Lipoma stalk, vessels, surface arborization. The stalk of the lipoma contains adipocytes and dilated, thick-walled vessels. Surface shows elongated and bifurcating crypts.
- **Figure 6:** Lipoma nodule. A nodule with transformed mucosa: crypts show decrease in mucin production and variation in shape and size, indicating atypical inflammation/regeneration.
- **Figure 7:** Lipoma erosion, close up of the nodule. Erosion is observed on the right sided areas that were replaced by granulation tissue whereas on the left side, the mucosa became quite loose, because of the heavy mixed inflammatory cell infiltration. At the same time, crypts showed a minimal decrease in mucin production and variation in shape and size, indicating atypical inflammation/regeneration.
- **Figure 8:** Hyperplastic crypts. The crypts became elongated with numerous Paneth-cells at the bottom. Towards the surface, crypts are a bit dilated and became uneven.
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Histopathological diagnosis of lipomas can be done usually without any problem if the tumor is resected entirely, since the characteristic mature adipose tissue, thick-walled vessels are easy to recognize. The problem arises when the tumor is not entirely resected or sampling is superficial, and escalates when bigger tumors possess secondary changes in their adipose part (necrosis, bleeding especially when resection is incomplete, etc.) or on the surface due to the chronic irritation and movement of the polypoid mass.

Our case illustrated several interesting features. Firstly, during endoscopic investigation, only the long stalk became visible at first glance; and, the head had to be pulsed back from the terminal ileum for better visualization. This suggested a probability or a potential risk of intussusception or occlusion of the bowel, justifying the need for resection. Usually, lipomas bigger than 2 cm are rather surgically removed, but the long stalk in our case made endoscopic removal with an endo-loop possible. On the other hand, the long stalk made the pedunculated lipoma mobile and prone to chronic irritation. The structure and endoscopic appearance were suggestive of lipoma, excluding the ambiguous irregular and reddish surface. This latter was proven to be a regenerative and hyperplastic change by microscopic examination.

Hyperplastic polyps are usually developed as reactive processes in the colon. For example, it might be a reactive change of the mucosa with a long history of chronic irritation and inflammation. As bigger lipomas are prone to harbour secondary changes on their surface (like erosion, ulceration and inflammation) due to the chronic irritation, it is understandable, that our lipoma bore hyperplastic features in the overlying mucosa, although this is very rarely reported in the literature. We hypothesized that this kind of hyperplastic change might be more commonly found than reported. Nonetheless, on the surface of larger lipomas, the chronic irritation rather causes ulcerations or even necrosis and auto-amputation (which could have presumably occurred with this lipoma later), and, at that point, the hyperplastic nature of the surface might not be further recognized. According to our hypothesis, this medium sized lipoma (4 cm) was big enough to develop a hyperplastic surface, but was not big enough to be totally ulcerated so this intermediate phenomenon with both hyperplastic and erosive signs on its surface could be harvested.

Conclusion

In summary, the most important challenge of colonic lipoma characterization is their differential diagnostic misleading caused by the polypoid appearance mimicking other malignancies or epitheloid tumors with a malignant potential. Our case also demonstrates that superficial sampling could have led to the possible misdiagnosis of a hyperplastic polyp or any kind of (ulcerative) colitis, therefore further highlights the need for complete resection and histological examination.
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References