Caecal Lipoma, Unusual Cause of Recurrent Appendicitis, Case Report and Literature Review
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Citation

Abstract
Lipoma is called the universal tumour. It can occur anywhere in the body. Caecal lipomas are considered rare probably because they are often asymptomatic or only mildly symptomatic, however they can cause significant pain, melena or diarrhoea or more serious conditions like intussusception and intestinal obstruction. We report a case of caecal lipoma presented as recurrent appendicitis reviewing the literature and evaluating the clinical features, diagnosis and treatment of this disease.

CASE REPORT
A 32 year old male admitted to the surgical ward at King Fahad Medical City, Riaydh with recurrent attacks of right lower quadrant pain associated with nausea vomiting. He was admitted to another hospital twice before as a case of suspected acute appendicitis and treated conservatively. On this occasion he was afebrile, pulse was 84/minute, blood pressure was normal and abdominal examination revealed tenderness on deep palpation over the right iliac fossa. There was no muscle rigidity or rebound tenderness. Full blood count showed mild leucocytosis with white blood cell count of 11000. Blood urea, creatinine and electrolytes were within normal limits.

A CT scan was done and it was reported by the radiologist as (The appendix is distended measuring about 25 mm in its base and 20 mm in the distal portion containing thick fluid density and associated with mild thickened wall measuring about 3 mm with no significant fat stranding in the peri-appendicular region. The above-mentioned findings are highly suggestive of mucocele of the appendix. Mucinous adenocarcinoma is a possibility). figure 1

Figure 1: CT scan showing a well circumscribed lump in relation to the caecum. Due to lack of convincing clinical signs of acute appendicitis we preferred to go ahead with more investigations including colonoscopy, barium enema and MRI.

The colonoscopy revealed smooth, spheroidal, slightly yellowish sessile lump about 2.5 cm in diameter at the appendicular orifice almost obstructing the orifice. (Figure 2). The lump demonstrated a positive Pillow/cushion sign and tenting signs seen in submucus lipoma (figure 2).
Figure 2
Figure 2: showing smooth, spherical, slightly yellowish sessile lump about 2.5 cm in diameter in the caecum.

Diagnosis of caecal lipoma was established and further confirmed by barium enema and MRI (Figure 3 & 4 and 5).

Figure 3
Figure 3: Barium enema showing a filling defect in the medial wall of the caecum.

At laparotomy there was a lump about 2.5 cm in diameter at the medial wall of the caecum. The appendix was found distended and hyperaemic. (Figure 6 & 7). A limited right hemicolecctomy was done. The Histology confirmed the diagnosis of lipoma as well as acute inflammation of the appendix.

Figure 4
Figure 4: the lesion demonstrating a positive squeeze sign on barium enema.

Figure 5
Figure 5: MRI showing the lesion with signal intensity of adipose tissue on T1-weighted image.
DISCUSSION

Lipomas are the most common soft-tissue tumor. These slow-growing, benign fatty tumors form soft, lobulated masses enclosed by a thin, fibrous capsule. They can be detected in virtually every organ system of the body including GI tract. Colonic lipoma was first described by Bauer in 1757 (1). They are the most common benign nonepithelial tumor of the colon (2) and the second most common benign tumors of the colon, after adenomatous polyps (3). They constitute 0.3 percent of all colorectal disease and 1.8 percent of benign colorectal disease (4).

Lipomas of the colon are predominantly right sided (5, 6). The most common area of involvement is the ascending colon and ileacaecal region (7). The majority of them presented as single while only in 10% of cases were multiple (8). Approximately in 90% of cases, lipoma is defined to arise from the sub mucosal layer and the subserosal or intermucosal layer accounting for the remaining 10% (1, 8). They may be sessile or pedunculated (8).

According to most of the current literatures, there is no malenor female predominance although some authors reported a higher incidence in women than in men (4, 10). Elders are more likely to be involved as the lesions occur with maximum frequency in the fifth to sixth decade of life (11, 12).

Lipomas of colon has got a varied presentation, The majority are small and asymptomatic (13). In many cases diagnosis is made incidentally at colonoscopy. Lesions having a diameter of greater than 2 cm are generally prone to be clinically symptomatic (14). Although some authors insisted that the clinical manifestations of colonic lipomas were associated with the size of tumor and not related to the involved segment of large bowel (9), our case is a good example that both the size and the site contributes to the clinical manifestation of the condition, as it was evident that the symptoms in our case were related to recurrent obstruction of the Appendicular orifice by the lipoma. There are few cases reported in the literature of caecal lipomas presented as acute appendicitis. Ian Hagan et al report a case of acute suppurative appendicitis caused by intussusception of a caecal lipoma involving the appendiceal orifice (15). Mudd et al reported another case of Infarction of a caecal lipoma simulating appendicitis (16).

Lipomas larger than 2 cm in diameter may cause symptoms such as constipation, diarrhea, abdominal pain, or rectal bleeding (17, 18). On rare occasions colonic lipoma may present with massive hemorrhage, obstruction, perforation, intussusception, or prolapse (19, 20). Occasionally, patients may complain of spontaneous passage of a lump of hemorrhagic tissues per rectum due to self-amputation of the lipoma (10).

Preoperative diagnosis mainly depends on colonoscopic examination since most lipomas are submucosal, colonoscopy can provide direct visualization and examination to elicit specific signs with biopsy forceps. Typical lipomas appear as smooth, spheroidal, slightly yellowish polyps of variable size, with or without a pedicle. The ‘pillow’ sign was considered positive when, after indentation with a closed biopsy forceps, the lipoma reverted to the original shape upon withdrawal (21, 22). The ‘naked fat’ sign was recognized as the exudation of yellowish
underlying adipose tissue after biopsy of the surface mucosa (23). Biopsy is not recommended in the patients with suspected lipoma, because the lesion is beneath the normal mucosa and biopsy often cannot promote diagnosis (7). Y. F. A. CHUN et al claimed that when the lipoma could not be readily removed by colonoscopy biopsies are inadequate for histological diagnosis (24).

Virtual colonoscopy (a computerized 3 D CT images) may become a viable alternative to conventional colonoscopy in detecting colonic lesions (including colonic lipomas), at lower cost and morbidity. The sensitivity of virtual colonoscopy for polyps greater than 10 mm was 93.8 %, compared to 87.5% with conventional colonoscopy. In addition, virtual colonoscopy is less invasive, requires no sedation, and does not have the inherent risks of conventional colonoscopy (25). The diagnosis of colonic lipoma is usually established on virtual colonoscopy if the axial 2D view with soft-tissue windowing shows that the lesion has fat attenuation (26).

Recent advances in imaging techniques including ultrasound, CT scan and MRI helped in making preoperative diagnosis of colonic lipomas.

On ultrasound lipoma appear as hyperechoic, well-circumscribed solid lesions with absent or minimal blood flow on color Doppler sonography, However, a definitive diagnosis with sonography is usually not possible. (27).

Endoscopic ultrasonography (EUS) is a potent adjunct modality for characterization of submucosal tumors. Colonic lipomas appear as hyperechoic lesions with regular borders in the three layers and can be distinguished from smooth muscle tumors, lymphangiomata, and invasive or metastatic malignancies (28).

Computerized tomography is considered to be the definitive diagnostic measure in recognizing colon lipomas because the masses present characteristic fatty densitometry values (29). On CT scan image, lipoma has uniform appearance with fat equivalent density in the range of -80 to -120 Hounsfield units and smooth border, but for small lipoma, the diagnostic value of CT is low. With particularly large lesions, the fatty density of the lesion may be appreciated by comparison to the retroperitoneal fat (30). In addition to diagnosis CT scan can provide more accurate data about the shape, structure, extension and location of the mass at the colonic wall, as well as showing its relationships with other neighboring viscera and structures (31, 32). Unfortunately the CT scan was misinterpreted in our case as appendicular mucocoele.

Barium enema is helpful in making diagnosis by showing a relatively radiolucent mass which appears as an ovoid, well-demarcated filling defect having sub mucosal features: intact mucosa, sharp Margination and obtuse angles between the lesion and the adjacent colonic wall, as well as features characteristic of lipomas: pliability and shape change with peristalsis “squeeze-sign” (33).

MRI (Magnetic resonance imaging) has been recommended as a reliable preoperative investigation (34, 35, 36, and 37). MRI may be particularly useful in the detection of lipomas as the signal intensity is characteristic of adipose tissue on T1-weighted and fat suppressing images (38, 31).

However, similar to CT scanning, MRI does not allow an absolute, reliable distinction between a lipoma and a liposarcoma (39).

The decision for selecting the most suitable treatment of a colonic lipoma mainly depends on the tumor’s size and is either endoscopic resection or surgical removal. It is generally accepted that small or pedunculated lipomas may be safely removed colonoscopically and the diagnosis confirmed histologically. Larger lipomas require surgical resection for relief of symptoms or to exclude malignancy (7). Resection should be considered for lipomas bigger than 20 mm in diameter (40). The indications for performing colonoscopic snare polypectomy to remove colonic lipomas remain controversial(24,41,42). Most authors agree that colonic lipomas with a diameter larger than 20 mm should be removed surgically, because in these cases endoscopic resection is associated with a high rate of complications(43, 40 and 44). However, especially for large penduculated lipomas, the size of the stalk seems to be a more important factor than the diameter of the lipoma when colonoscopic removal is considered (43, 44). Hong Zhang et al suggest that if a lipoma is sessile or broadly-based, endoscopic removal is risky because the fatty tissue is an inefficient conductor for electric current and may result in a significantly high rate of complications like perforation or hemorrhage. (8).

Various techniques are described in the literature to maximise the safety of endoscopic removal of colonic lipomas as saline injection to the base of the lesion to reduce the risk of perforation by reducing the likelihood of snaring underlying muscularis during resection (45) endoscopic ultrasound is also used to evaluate the deep
margins of colonic lipomas and to insure that there is no extension into the underlying muscularis before attempts of colonoscopic removal(46).

Conventional laparotomy including enucleation, colotomy and excision, and segmental colonic resection has been described as choice of surgical treatment of colonic lipomas as well as minilaparotomy or transanal resection of lesions mimicking rectal prolapse (47, 1, 19, and 48).

Laparoscopic and laparoscopic assisted approaches were also described as alternative to laparotomy and minilaparotomy for management of colonic lipomas (49, 50).

**SUMMARY**

Colonic lipomas are rare benign tumors of the colon. Their clinical presentation depends on the size and the site of the lesions. Small colonic lipomas are usually asymptomatic and discovered incidentally on colonoscopic examinations, large colonic lipomas may cause symptoms such as constipation, diarrhea, abdominal pain, or rectal bleeding or more seriously massive hemorrhage, obstruction, perforation, intussusceptions, or prolapse. Caecal lipoma may present with acute appendicitis if it occludes the appendicular orifice. Diagnosis usually established by colonoscopy and confirmed by CT scan or MRI.

Small colonic lipomas are amenable to endoscopic removal while large ones should be treated by surgical resection.

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