

CASE REPORT

Primary sclerosing lipogranuloma of the rectum: CT findings

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ABSTRACT. Sclerosing lipogranuloma is a rare, benign disease which is a peculiar granulomatous reaction of fatty tissue. This disease affects multiple organs and the majority of cases are secondary to exogenous foreign bodies. The authors report a case of primary sclerosing lipogranuloma of the rectum mimicking a submucosal rectal tumour.

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Sclerosing lipogranuloma is a rare, benign disease which is a peculiar granulomatous reaction of fatty tissue [1, 2]. This disease can affect many different organs, particularly those of the genitourinary system [1–3]. The majority of cases are secondary to exogenous foreign bodies, such as paraffin and mineral oil [1–3]. Although one case of sclerosing lipogranuloma of the rectum has been reported in the literature, the imaging features were not shown [4]. We report the CT findings of a rare, primary sclerosing lipogranuloma of the rectum mimicking a submucosal rectal tumour.

Case report

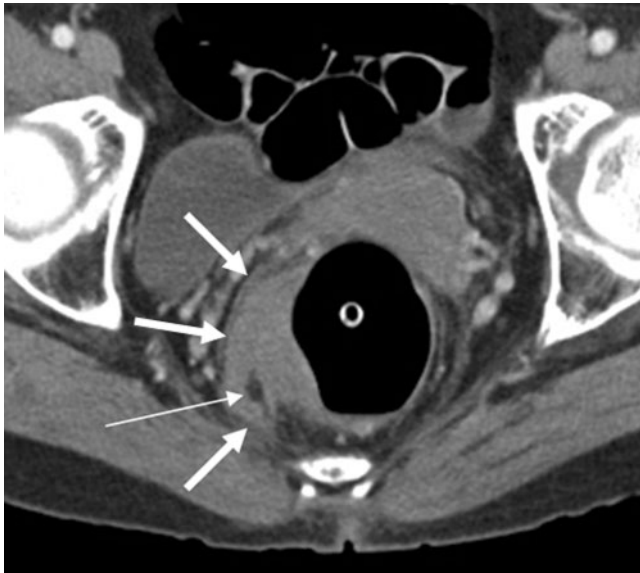
A 55-year-old female was admitted to our hospital with intermittent haematochezia of 5 months' duration. The patient had undergone total thyroidectomy due to papillary carcinoma 8 months previously and had taken thyroid hormone since that time. She had no history of previous rectal surgery or of injection of an exogenous substance. Rectal examination showed no abnormalities. Laboratory tests showed a haemoglobin level of 11.6 g dl⁻¹ (normal range 12–16 g dl⁻¹) and a decreased level of free T4 and thyroid stimulating hormone (TSH). However, the patient's other tests were normal. She had a normal body mass index of 24 (normal 20–24). Axial and coronal-reformatted, contrast-enhanced CT colonography with bowel cleansing showed a well-demarcated, homogeneous mass with a small fatty portion in the right lateral wall of the lower rectum (Figure 1). The mass was approximately 5 cm in the longest diameter, of similar attenuation to the gluteus muscle, abutting the right levator ani muscle and showed focal thickening of that

muscle, suggesting tumour invasion (Figure 1a). Thickening of the right mesorectal fascia was also noted on the CT scans. The inner enhancing layer of the rectum overlying the mass was intact (Figure 1b). Neither obstruction of the colon nor lymphadenopathy was noted on the CT scans. Neither were there any other organs with abnormal findings on the CT scans. The results of colonoscopy were normal, but endorectal ultrasound revealed a mass located within the rectal wall without invasion into the perirectal tissue at 5 cm above the anal verge. The pre-operative diagnosis was a submucosal rectal mass, such as a gastrointestinal stromal tumour or lymphoma. The patient underwent a low anterior resection. The pathological examination demonstrated an ill-defined mass extending from the submucosa to the subserosa of the rectum. The cut surface of the mass was pinkish-yellow, granular and gelatinous (Figure 2). The overlying mucosa was unremarkable. The mass contained a small dark yellow portion of intact fat tissue, which corresponded to a small fatty portion of the mass on CT scans. Histological examination showed fibrosis, fat tissue and granuloma composed of epithelioid cells and multinucleated giant cells, and inflammatory infiltrates of lymphocytes, macrophages and monocytes. The histopathological diagnosis was sclerosing lipogranuloma of the rectum. The biopsy results of the right levator ani muscle also indicated sclerosing lipogranuloma.

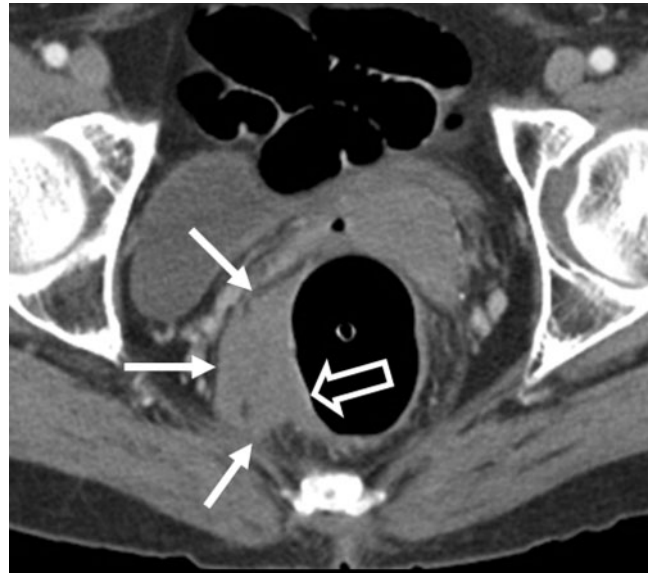
Discussion

Sclerosing lipogranuloma is an uncommon, peculiar granulomatous reaction of fatty tissue after injury to adipose tissue by many causes [1–3]. This disease can be divided into primary and secondary types according to their causes, the primary type being caused by the breakdown of endogenous lipids and secondary type by injection of exogenous foreign bodies, such as paraffin,

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(a)



(b)

Figure 1. 54-year-old woman with primary sclerosing lipogranuloma of the rectum. (a,b) Transverse contrast-enhanced CT scans with a craniocaudal sequence show a well-margined, homogeneous mass (arrows) with isoattenuation to the gluteus muscle in the right lateral wall of the rectum. An endorectal tube is noted in the rectal lumen. (a) There is a small portion of fat (thin arrow) in the mass. (b) The intact, inner, enhancing layer of the rectal wall (open arrow) is noted and suggests a submucosal mass.

mineral or vegetable oils and silicone [1–3]. Although primary sclerosing lipogranuloma without a possible aetiology is rare in Western countries, many cases of primary sclerosing lipogranuloma of the genitourinary system have been reported in Japan with patient histories of trauma, exposure to low temperatures, compression or penile torsion [1, 5]. In our patient, as there was no history of injection of a foreign body, we assumed that this

represented primary sclerosing lipogranuloma of the rectum. The pathogenesis of primary sclerosing lipogranuloma is unclear, although an allergic mechanism has been suggested [2, 3]. In some published cases, eosinophilia has been detected in the peripheral blood and was assumed to have a connection with the sclerosing lipogranuloma. In our patient, the peripheral eosinophil count was normal. Sclerosing lipogranuloma is characterized by granulomas, multinucleated giant cells, lymphocytic infiltration and fibrosis, and rarely necrosis [3]. The majority of sclerosing lipogranulomas occur in the genitourinary system, but various organs, such as the spleen, the liver, the mesentery, the breast, the scalp, the eyelid and the nose, have also been involved. Mesenteric lipogranuloma is a synonym for sclerosing mesenteritis, which has three pathologically different variants, *i.e.* mesenteric panniculitis, mesenteric lipodystrophy and retractile mesenteritis [6, 7]. In women, lipogranuloma peritonealis, granulomatous inflammation of the peritoneum, may have various causes including fungal or bacterial infections, foreign body reactions due to a previous diagnostic test or surgical procedure, or contents of cystic teratomas or carcinoid tumours of the ovary and uterus [8]. Motoori et al [1] reported CT and MR images of sclerosing lipogranuloma of male genitalia. In that case, the mass occupied the scrotum and invaded around both spermatic cords. The mass showed irregular enhancement and contained some cystic or necrotic components without a fatty portion on CT or MR scans. In 1954, Wilson and Boody [4] reported a case of sclerosing lipogranuloma of the rectal wall, which clinically simulated carcinoma. Unfortunately, the radiological findings of their case were not shown. They suggested that a possible aetiological factor was the ingestion of large quantities of mineral oil over a period of years. To the best of our knowledge, our case is the first of CT findings of sclerosing lipogranuloma of the rectum in the English literature.

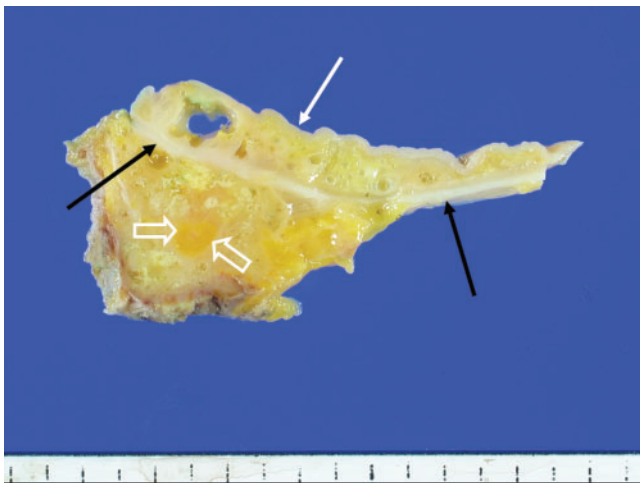


Figure 2. Photograph of the gross specimen shows an ill-defined mass extending from the submucosa to the subserosa of the rectum. The cut surface of the mass was yellow, granular and gelatinous. The overlying mucosa was unremarkable (white arrow). The muscle layer of the rectum is seen as a white band (black arrows) between the submucosa and the subserosa of the rectum. The mass contained a small dark yellow portion of intact fat tissue (open arrows), which corresponded to a small fatty portion of the mass on CT scans.

In our patient, the CT findings of sclerosing lipogranuloma of the rectum were a well-defined, homogeneous mass with a small fatty portion in the rectal wall, mimicking a submucosal tumour rather than a rectal carcinoma because of intact inner enhancing layer of the rectal wall. Our patient had focal thickening of the right levator ani muscle abutting the mass and thickening of the right mesorectal fascia, both mimicking tumour invasion and tumour infiltration. In general, submucosal tumour of the rectum, including gastrointestinal stromal tumour and lymphoma, do not contain fat. Mesorectal fascial thickening is also an unusual finding in submucosal tumours of the rectum. Unfortunately, our patient did not undergo MR examination. We believe that MRI would be the imaging modality of choice for assessing the nature of the rectal lesion.

In summary, we report a very rare case of primary sclerosing lipogranuloma of the rectum, which is a homogeneous, submucosal mass with a small portion of fat and associated mesorectal fascial thickening on CT scans. These are unusual CT findings of common submucosal tumours of the rectum.

Acknowledgments

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