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Idiopathic Retroperitoneal Fibrosis with Rectosigmoid Obstruction : Imaging Findings[1]

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Retroperitoneal fibrosis(RPF), although rare, can lead to significant intestinal obstruction. A case of RPF resulting in obstruction of the rectosigmoid colon is presented. Computed Tomography(CT) and Magnetic Resonance Imaging(MRI) revealed a characteristic fibrotic mass impinging on the rectosigmoid colon.

Index Words : Retroperitoneal space, fibrosis
Retroperitoneal space, CT
Retroperitoneal space, MR

Retroperitoneal fibrosis(RPF) is a pathologic process in which inflammatory and fibrous tissue envelop and impinge on retroperitoneal structures. Similar fibrotic processes involving the aorta, aortoiliac system, vena cava, thyroid, mediastinum, coronary arteries, biliary tree, portal vein, and spleen have been described (1-4). There have, however, been only a few reports of gastrointestinal tract involvement(1, 2, 5-7). We report a case of idiopathic RPF with rectosigmoid obstruction in which CT and MR depicted an extrinsic fibrotic mass involving the rectosigmoid colon, and review the literature describing bowel obstruction secondary to retroperitoneal fibrosis.

Case Report

A 58-year-old man was admitted with a 4-week history of increasingly frequent and severe episodes of constipation, melena, and lower abdominal pain. On admission, the results of physical examination were unremarkable. Laboratory tests showed non-specific findings, and the patient had no past history such as medication with specific drugs or tumorous conditions. Sigmoidoscopy revealed luminal narrowing of the rectosigmoid colon by an extrinsic mass, but the mucosa was intact, while double contrast barium enema showed segmental luminal narrowing of this area. A regular pattern of thickening of the mucosal folds was seen, and the presacral space was widened. These findings suggested that the lesion was caused by the extrinsic mass(Fig. 1). Post contrast axial CT scanning of the pelvis showed a large lobulating soft tissue mass impinging on the rectosigmoid colon and extending on serial scans from the level of the kidney to the ischial spine. MRI showed an extensive retroperitoneal mass that was low in signal intensity on both T1- and T2-weighted images(T1 and T2WI) (Fig. 3). The mass was not enhanced following the administration of intravenous contrast material, and regional organs were not involved. By means of explorative laparotomy, a biopsy was performed, and pathology revealed a fibrotic mass with chronic inflammation.

Discussion

RPF is a well known entity, idiopathic in two-thirds of cases, and most commonly found as an isolated fibrotic plaque centered over the lower lumbar spine and entrapping one or both ureters. It is characterized by a proliferation of fibrous tissue and varying amounts of chronic inflammation in the retroperitoneum(2, 3, 7). It has been postulated that in idiopathic cases, fibrosis results from a hypersensitive reaction to antigens leaking into the retroperitoneum from atheromatous plagues in the aorta or common iliac arteries(2, 3, 7). In the remaining one third of cases,

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causes include ergot-derivative drugs, retroperitoneal hemorrhage or trauma, urine extravasation, aortic aneurysm, regional enteritis, pancreatitis, radiation, systemic vasculitis, and a desmoplastic response to a variety of tumors(3, 4). Histopathologically, the disease is characterized in its early stages by inflammatory cells and edema in a loose collagen network. The mature plaque is composed of dense fibrous tissue with minimal cellular infiltration(3). Since this progression influences MR signal characteristics, it is important(3). Differentiation between malignant and nonmalignant RPF appears feasible and depends on tissue contrast rather than on morphologic characteristics. On T2-predominant images, malignant RPF therefore shows high signal intensity, while nonmalignant RPF shows low signal intensity(3, 4). The degree of contrast enhancement on CT also correlates with the extent to which the disease is active, The differentiation of RPF from lymphoma, sarcoma, or malignant retroperitoneal adenopathy can be difficult and biopsy is sometimes required if clinical presentation or radiographic appearance is atypical, or if neoplasm is suspected(7).

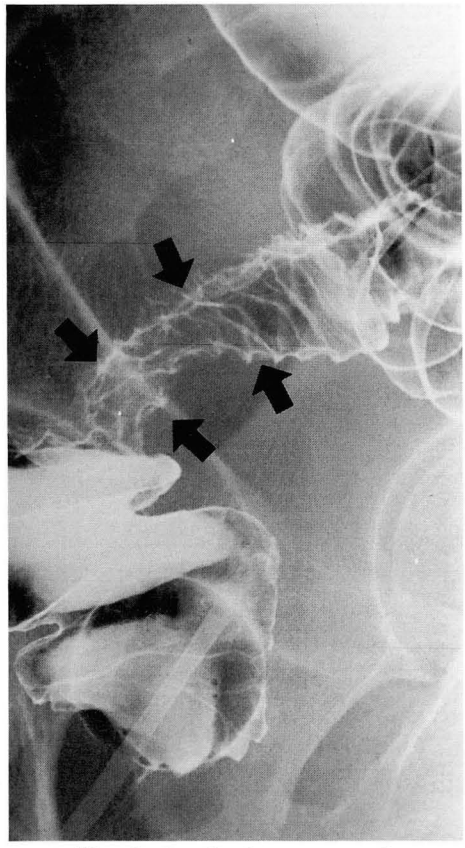


Fig. 1. A spot film during barium enema shows a segment luminal nrrowing of the rectosigmoid colon. The mucosal folds are thickened in regular pattern. Note widened rectosigmoid space.

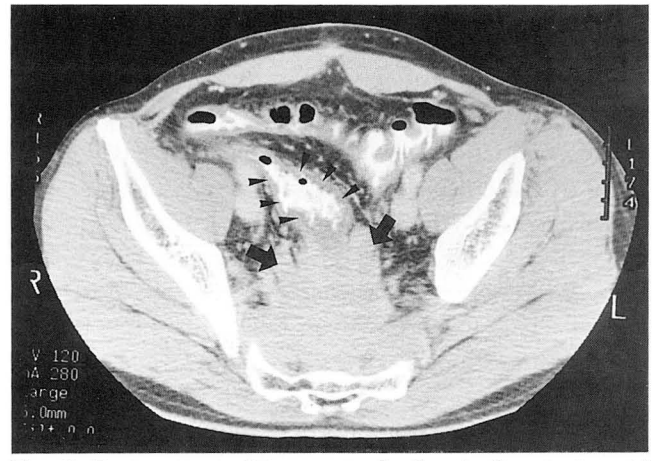
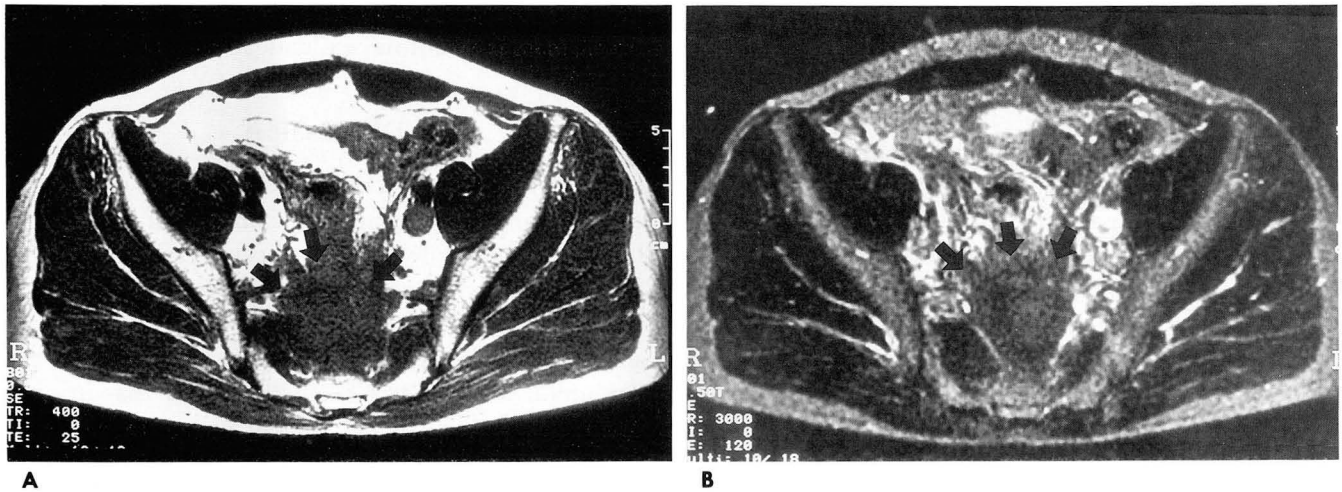


Fig. 2. Postcontrast CT scan at the level of rectosigmoid junction shows an irregular presacral soft tissue mass (arrows) which is not enhanced. The mass encases the rectum and sigmoid(arrow heads).



A **B**

Fig. 3. A, B. Both T1(**A**) and T2(**B**) weighted MR images show a well-defined soft tissue mass(arrows) in presacral area. The mass is low in signal intensity on both T1 and T2WI.

Although ureteral obstruction is the most frequently discussed complication of RPF the disease can cause obstruction of the alimentary tract at three sites: the mesentery of the small bowel, the retroperitoneal duodenum, and the rectosigmoid(1, 2, 5-7). Obstruction of the small bowel mesentery has been referred to as mesenteric panniculitis, a variant of Weber-Christian disease(nonsuppurative panniculitis)(8) and sclerosing mesenteritis. There have been a few reports of retroperitoneal fibrosis affecting the large bowel. Various symptoms include constipation, diarrhea, back pain during defecation, ribbon-like stools, and abdominal distension. The CT demonstration of RPF involving the large bowel in a patient with bowel dysfunction has been reported(6, 7) but MRI findings have not been previously reported. In cases of retrorectal mass in which MR signal intensities are similar, retroperitoneal fibrosis should therefore be differentiated.

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