

MRI Findings of Mucinous Adenocarcinoma Arising From Perianal Fistula: Report of Two Cases

Perianal Fistül Zemininde Gelişen Müsinöz Adenokanserin MRG Bulguları: İki Olgu Sunumu

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ABSTRACT

Mucinous adenocarcinoma may develop on the chronic setting of a perianal fistula. Magnetic resonance imaging (MRI) is the choice of imaging technique for the diagnosis of mucinous adenocarcinoma arising from perianal fistula. T2-weighted, and contrast enhanced MR images may provide important diagnostic information. In this report, we present MRI findings of two cases with mucinous adenocarcinoma arising from chronic perianal fistula with a brief review of the literature.

Key Words: Perianal fistula, mucinous adenocarcinoma, magnetic resonance imaging.

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ÖZET

Müsinöz adenokanser kronik perianal fistül zemininde gelişebilir. Perianal fistülden gelişen müsinöz adenokanser tanısında tercih edilen görüntüleme yöntemi manyetik rezonans görüntülemedir (MRG). T2-ağırlıklı ve kontrastlı MR görüntüleri önemli tanısal bilgiler sağlayabilir. Bu makalede kronik perianal fistül zemininde müsinöz adenokanser gelişen iki hastanın MRG bulguları özetlenmiş literatür bilgileri eşliğinde sunulmaktadır.

Anahtar Sözcükler: Perianal fistül, müsinöz adenokanser, manyetik rezonans görüntüleme

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INTRODUCTION

Mucinous adenocarcinoma arising from perianal fistula is rare, and the diagnosis is difficult. The carcinoma develops on the chronic setting of the disease (1,2,3). Patients with perianal fistula usually present with purulent discharge and pain (4). There are no specific symptoms for mucinous adenocarcinoma complicating a chronic perianal fistula (5). The past medical histories of these patients may mislead the physicians, and cause a delay in diagnosis (6). Magnetic resonance imaging (MRI) is the most accurate technique for the preoperative diagnosis, and classification of a perianal fistula (7). T2-weighted, and contrast enhanced MR images are helpful in the evaluation of patients with complicated long-standing disease, and may provide important diagnostic information in malignant transformation (7).

In this report, we present MRI findings of two cases with mucinous adenocarcinoma arising from chronic perianal fistula with a brief review of the literature.

CASE REPORT

Case I

A 65-year-old man was admitted to the Department of Surgery with anal pain, and discharge. He had undergone five previous interventions at other institutions for drainage of recurrent perianal abscess for over ten years before he was referred to our hospital. The internal opening of the fistula was identified at the posterolateral midline in the lithotomy position. The fistula was incised, and a seton was inserted. The abscess cavity was drained. The histopathological examination of the drainage, and curettage material revealed mucinous adenocarcinoma. Positron emission computed tomography (PET CT) and contrast-enhanced pelvic MRI was performed in order to stage the disease. MRI showed an infiltrative and lobulated mass with dimensions of 10x8x2.5 cm in the right ischioanal fossa (Figure 1). The mass was heterogeneously hyperintense on T2-weighted images, and showed heterogeneous peripheral enhancement on contrast-enhanced T1-weighted sequences. There was a mesh-like internal appearance (Figure 2).

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The anal sphincter was deformed due to previous surgeries. On PET CT no pathological uptake other than the perianal mass was detected elsewhere in the body. Neoadjuvant radiation therapy and abdominoperineal resection were performed. On the third month follow-up, pelvic MRI was performed. A soft tissue mass was found posterior to the right internal obturator muscle. The neighboring pelvic bones showed pathological signal intensities, and contrast enhancement. Computed-tomography guided biopsy was performed, and the histopathological examination ruled out tumor recurrence. The histopathological diagnosis was active inflammatory inflammation. The patient is still under follow-up.



Figure 1. Case I. On T2-weighted coronal image, a lobulated, infiltrative mass is seen in the right ischioanal fossa (arrows). The mass is heterogeneously hyperintense with thin internal septations.

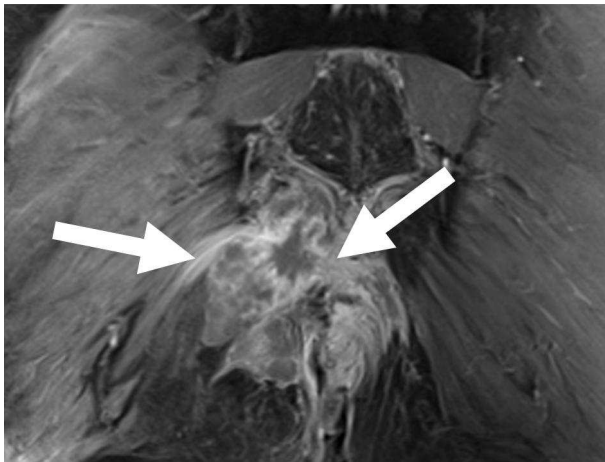


Figure 2. Case I. On contrast enhanced T1-weighted coronal image the mass shows peripheral and mesh-like enhancement (arrows).

Case II

A 55-year-old man was admitted to the Department of Surgery with progressive swelling, and pain in the perianal region. The patient had undergone perianal abscess drainage at another institution, but he could not recall the date. The clinical history of the anal fistula was unclear. Preoperative colonoscopy showed no abnormality. On MRI, a 7.5x5 cm horseshoe like mass located in the posterior aspect of the anal canal, which extended towards to the gluteal muscles posteriorly, and to the prostate gland anteriorly, was seen. The mass was quite hyperintense on T2-weighted and STIR images (Figure 3). On contrast enhanced T1-weighted images the mass showed mesh-like, and nodular enhancement (Figure 4). The abscess was drained, and the fistula was excised. During surgical exploration it was noted that the internal material of the fistula was gelatinous. Biopsy of the fistula tract revealed mucinous adenocarcinoma. The patient refused further therapy and surgery.



Figure 3. Case II. A horseshoe mass is seen in the posterior aspect of the anal canal (arrow heads). The mass extends towards to the prostate gland anteriorly (arrow). Note that the mass is quite hyperintense on the STIR image.

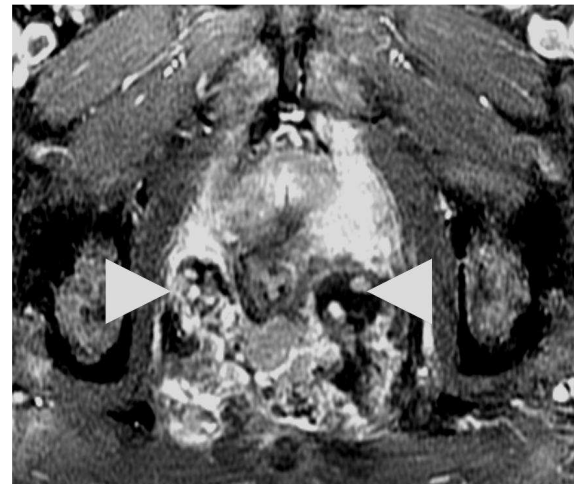


Figure 4. Case II. On contrast enhanced T1-weighted axial image, a mesh-like and nodular enhancement is noted in the perianal mass (arrow heads).

DISCUSSION

Malignant transformation has to be ruled out in every patient presenting with chronic perianal fistula. In most cases with mucinous adenocarcinoma arising from perianal fistula, the fistula persists for more than 10 years (7). Although the symptoms are uncharacteristic, and appear late, the onset of pain, and hard induration in a long-standing fistula, or the appearance of mucinous drainage should not be ignored (2,8).

Carcinoma arising from perianal fistula can be adenocarcinoma or squamous cell carcinoma because both squamous and columnar mucosae are present in this area (8). Anal canal represents an anatomic transition zone between the perianal squamous mucosa, and the columnar epithelium of the rectum (6). Chronic inflammation induces repeated epithelial regeneration, and this gives rise to malignant transformation. When surgery is performed in a patient with chronic perianal fistula, histopathological examination must be subjected (8). Results of needle biopsies are usually not conclusive because the cancer cells float in mucous lakes, and they cannot be obtained easily. The biopsy of the external opening of the fistula is also not definitive in most cases (9). MRI is the most accurate imaging modality to evaluate the perianal anatomy, to visualize the extent of the perianal abscess, and the fistulous tract, and to diagnose malignant transformation (7). It has been shown that T2 hyperintense content reflects the mucin pool of carcinomas, and that the proportion of the high signal intensity within the tumor correlates well with the amount of intratumoral mucin pools.

This appearance may help the radiologists to distinguish mucinous carcinoma from non-mucinous carcinoma on T2-weighted MR images (10). Unlike homogenous hyperintense appearance of abscesses, mucinous adenocarcinomas reveal a heterogeneous content due to the various size of mucin pools (3). As mucinous adenocarcinoma is an invasive tumor in nature, it has been suggested that mucin pools without thick fibrous capsules can be seen on T2-weighted MR images reflecting the invasion of perianal tissues by tumor cells before fibrotic reaction occurs (7).

The contrast enhancement pattern is heterogeneous, and mesh-like due to the mesh-like internal structure formed by columns of malignant cells, cords, and vessels. This enhancement pattern can help to distinguish mucinous adenocarcinomas from abscesses (5,7). On both cases which we have presented here, the typical mesh-like enhancement pattern is clearly delineated, but in case II there is also a nodular enhancement which has not been described in the literature. Both enhancement patterns suggest that these lesions are not abscesses, and malignant transformation has to be concerned. Therefore, contrast enhanced MR sequences are very important in differential diagnosis. Peritumoral areas may also show contrast enhancement but this finding is not specific, as active inflammation within the perianal fistula can cause contrast enhancement in peripheral tissues (7).

The tumor is often of low grade, has a slow growth, and distant metastasis is infrequent (5). Metastases are usually located in the pelvic region, and regional lymphadenopathy may indicate a locally advanced mucinous adenocarcinoma (7).

Abdominoperineal resection is the surgical treatment of choice. Chemotherapy and radiation therapy can be required. The prognosis of the disease is good but lymph node metastasis suggesting a more advanced stage would carry a poorer prognosis (1).

In conclusion, when patients present with chronic perianal fistula a clinical suspicion of perianal tumors should arise, and MRI should be performed. T2-weighted, and contrast enhanced MR images can provide adequate diagnostic information in mucinous adenocarcinoma arising from perianal fistula.

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Conflict of Interest

No conflict of interest was declared by the authors.

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