

## Inflammatory Pseudotumor of the Anal Sphincter Complex : A Case Report<sup>1</sup>

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We describe a case of inflammatory pseudotumor involving the anal sphincter complex, and its ultrasonography and MR imaging features. Transperineal ultrasonography showed a well-marginated ovoid low echoic lesion intermingled with sparse echogenic foci within the right anal sphincter complex. The lesion was of intermediate signal intensity on T1-weighted images and of heterogeneous hyperintensity on T2-weighted, compared to surrounding muscle. After the infusion of gadolinium, the lesion showed heterogeneous enhancement, with a multifocal non-enhanced center. T2-weighted endorectal MR images were more accurate in depicting the lesion and anal sphincter complex, and the patient underwent surgical resection. The final histologic diagnosis was inflammatory myofibroblastic tumor.

**Index words :** Anus, abnormalities

Anus, US

Magnetic resonance(MR), intracavitary coils

Inflammatory pseudotumor is characterized by inflammatory masses which mimic true neoplastic processes. Histologic findings are predominantly of plasma cells and other elements supported by fibrous stroma (1). The masses may be the results of overresponse to a variety of insults of external origin, with altered normal immune response (2). Many cases involving the lungs, liver, stomach, and retrorectal spaces, have been reported in the literature(3-6), but to the best of our knowledge, this is the first description of inflammatory pseudotumor involving the anal sphincter complex and demonstrated by ultrasonography and endorectal MR imaging.

### Case Report

A 37-year-old female presented with a 6-month history of right perianal mass. Physical examination revealed a soft, non-tender mass in the right perianal region. She denied any history of perianal abscess, fistula or trauma. The laboratory findings, including tumor markers, were all within normal limits. Transperineal sonography showed a well-marginated ovoid heterogeneous low echoic mass, approximately 6x4 cm size, intermingled with sparse echogenic foci and involving the anal sphincteric region. In addition, a few spots of flow signal were demonstrated by color flow imaging (Fig. 1.A). Using a 0.5-T system (Gyroscan T5-II, Philips Medical System, Best, The Netherlands) with body and endorectal coils, MR imaging was performed. On T1-weighted axial images, the mass emitted an intermediate signal compared with that of the adjacent gluteus muscle, which had thin septation (not shown). No evidence of ischioanal space infiltration was noted. On T2-weighted

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coronal and axial images obtained using endorectal coil, heterogeneous high signal intensity was noted, with scattered low-signal intensity areas (Fig. 1.B,C). Gadolinium-enhanced axial images showed heterogeneous thick peripheral enhancement, with a central non-enhanced portion (Fig. 1.D). T2-weighted endorectal MR images depicted the relationship between the anal sphincter complex and the lesion more clearly than did body coil images. The patient underwent surgical resection, but total resection could not be achieved due to subtle infiltration of the mass into the anal sphincter muscle bundles. A yellowish lobulated mass was found, and microscopic examination revealed proliferation of

fibroblastic tissue infiltrated by inflammatory cells, predominantly lymphocytes, and plasma cells (Fig. 1.E). Mitotic activity or cellular atypia were not noted. The final histologic diagnosis was inflammatory myofibroblastic tumor.

## Discussion

Inflammatory pseudotumor is a rare histologically benign mass characterized by proliferative myofibroblasts, fibroblasts, histiocytes, and, occasionally, plasma cells and lymphocytes(5). Inflammatory pseudotumor has a variety of synonyms, including plasma cell granuloma,

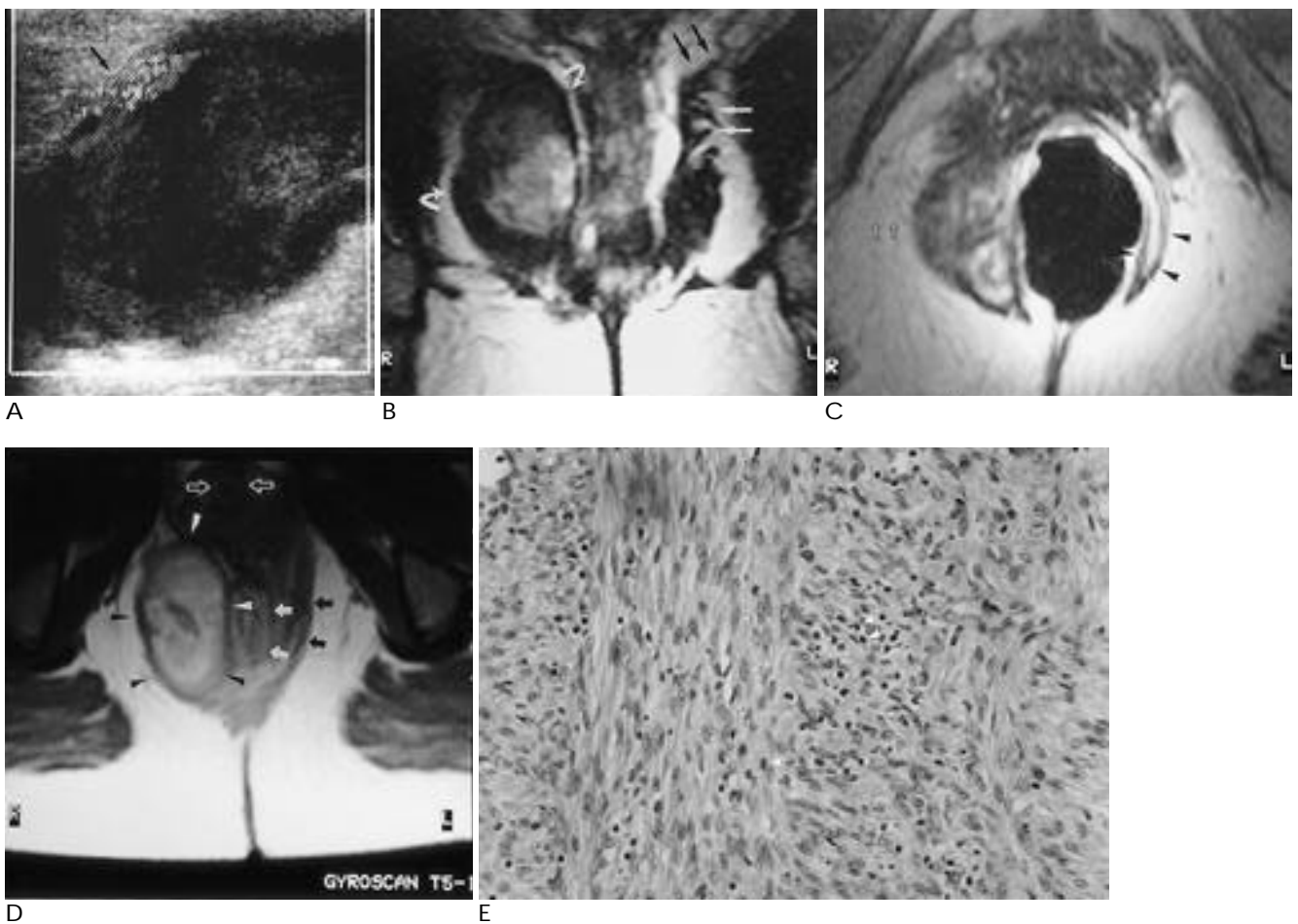


Fig.1. A . Transperineal color ultrasonogram shows a well-margined hypoechoic mass intermingled with sparse echogenic areas. There is a cluster of flow signal at periphery of the mass (arrow).

B , C . Coronal and axial T2 weighted images with endorectal coil show heterogeneous hyperintense signal mass with low signal foci (curved arrows).

Two halves of the external anal sphincter (black arrowheads), puborectalis muscle (white arrows), and levator ani muscle (black arrows) in normal left side are clearly depicted. Ischioanal spaces (black open arrows) are not involved.

D . Gadolinium-enhanced T1 weighted axial image shows heterogeneously enhancing mass with non-enhancing center (arrowheads). Note the caudal part of the external anal sphincter (black arrows), internal anal sphincter (white arrows), and urethra (white open arrows) anteriorly.

E . Histologic section of the mass shows spindle cell (fibroblastic tissue) proliferation(white arrows) intermixed with lymphocytes and plasma cells(white arrowheads, Hematoxylin-eosin stain,  $\times 200$ ).

inflammatory myofibroblastic tumor, histiocytoma, xanthoma, fibroxanthoma, xanthogranuloma, plasma cell tumor, fibrous xanthoma, xanthematous pseudotumor, and plasma cell histiocytoma complex (7). In some cases, there is a history of trauma, surgery, or infection (2). This patient, however, had no history of previous insults. The imaging findings of inflammatory pseudotumor are non-specific and often resemble true neoplasms. Previous reported MR findings of retrorectal inflammatory pseudotumor showed an intermediate signal on T1-weighted images and a heterogeneous increased signal on T2-weighted, with obliteration of the adjacent fat plane (6). Although in our case signal intensity was similar to that shown by a retrorectal inflammatory pseudotumor, there were some differences. Our case was well-confined within the anal sphincter complex and adjacent ischioanal fat space was well-preserved. We presumed that these salient features are due to the relatively tight muscle bundles of the anal sphincter complex and the slow growth shown by the tumor. The low signal intensity foci within the mass, as seen on T2-weighted images, can be explained by the fibrous components of the tumor. After the infusion of gadolinium, these low signal intensity portions were diffusely enhanced, and non-enhanced focal areas remained, and this suggests a tumor with a more compact fibrous component, rather than necrosis. A longer delay time might have produced a more completely enhanced lesion. Recent studies using an endoanal coil have demonstrated the advantage of high spatial resolution and increased signal-to-noise ratio for imaging the anal sphincter (8). In our case, using an endorectal coil, anatomical structures including the external anal sphincter, pub-

orectalis muscle, levator ani muscle, and ischioanal space were clearly demarcated. In conclusion, we have described a case of inflammatory pseudotumor with involvement limited entirely to the anal sphincter complex. The role of endorectal MR imaging was redefined; this clearly depicted the lesion and surrounding anal sphincter complex, and their appropriate margins, thus permitting the avoidance of unnecessary surgical resection of this complex.

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