

## CT and MR Findings of Presacral Epidermoid Cyst: A Case Report<sup>1</sup>

**Dal Mo Yang, M.D., Myung Hwan Yoon, M.D., Hak Soo Kim, M.D., Hyung Sik Kim, M.D.  
Hyo Seon Chung, M.D., Jin Woo Chung, M.D., Seung Yeon Ha, M.D.<sup>2</sup>**

Epidermoid cyst of the presacral space is a rare benign congenital lesion which is lined with keratinized squamous epithelium. We describe the computed tomography (CT) and magnetic resonance (MR) imaging findings in a case of presacral epidermoid cyst in a 35-year-old woman. The lesion appeared on CT as a well defined cystic mass with a thin wall. MR imaging showed heterogeneously low signal intensity on T1-weighted images and heterogeneously high signal intensity on T2-weighted images.

**Index words :** Epidermoid  
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Masses in the presacral space are rare and an epidermoid cyst in this region is considered a rare differential diagnosis (1-4). Epidermoid cyst is a rare benign congenital lesion, characterized by the presence of a cyst lined with keratinized squamous epithelium. It probably originates from embryonic remnants following the development and disappearance of the neurenteric canal, proctodeal membrane or postanal gut (1).

CT and MR imaging findings of intracranial epidermoid cysts have been extensively described (5, 6), but to our knowledge, only one case report in the literature in English has described the MR imaging features of a presacral epidermoid cyst (2). We describe the CT and MR findings in a case of presacral epidermoid cyst.

### Case Report

A 35-year-old woman was referred for further evaluation and management of a pelvic mass discovered on sonography. She had suffered low back pain for the pre-

vious six months. Digital examination of the rectum revealed a rubbery mass located in right pararectal space.

Pelvic ultrasound showed a large ovoid mass with an inhomogeneous hypoechoic pattern and increased through transmission. Pelvic CT showed an ovoid cystic mass with a thin wall lying anterior to the sacrum and coccyx, and displacing the rectum to the right and anteriorly (Fig. 1A). No bony destruction or defect was seen in the sacrum. On unenhanced T1-weighted MR image (repetition time msec/echo time msec = 500/20), the mass showed heterogeneously low signal intensity (Fig. 1B). On T2-weighted image (1500/80), the mass revealed heterogeneously high signal intensity with a lobulated contour (Fig. 1C). The mass did not enhance after injection of gadapentetate dimeglumine.

After diagnosis of a presacral cystic mass, this was completely excised via the abdominal approach. The mass measured 8 × 7 × 7 cm in size and contained keratinized viscous fluid. Microscopic sections revealed fibrous tissue lined by stratified squamous epithelium and containing keratinous materials (Fig. 1D), consistent with an epidermoid cyst.

### Discussion

Epidermoid cyst is a rare congenital lesion of ectoder-

<sup>1</sup>Department of Radiology, Gachon Medical College Gil Medical Center

<sup>2</sup>Department of Pathology, Gachon Medical College Gil Medical Center  
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Address reprint requests to : Dal Mo Yang, M.D., Department of Radiology, Gachon Medical College Gil Medical Center,  
#1198, Kuwol-Dong, Namdong-Ku, Incheon 405-220, Korea.  
Tel. 82-32-460-3060 Fax. 82-32-460-3055

mal origin. Histologically it often has a thin wall lined by stratified squamous epithelium, surrounding a mixture of desquamated debris, cholesterol, keratin, and water. Epidermoid cyst of the presacral space is rare, with only about 40 cases having been reported (2). The pathogenesis of the presacral epidermoid cyst is that it develops from the remnant of ectodermal tissues misplaced during embryogenesis. It most often occurs in women, being rarely encountered in men (1, 2). It produces no symptoms and the patient may be unaware of its presence until an infection, fistula or compression of the rectum supervenes (2).

The radiologic findings of presacral epidermoid cysts have seldom been reported. Barium enema examination of such a cyst shows an extrinsic retrorectal mass (1),

but differential diagnosis with other retrorectal tumors is not possible. On CT images, epidermoid cysts generally appear as thin walled cystic masses with fluid density (2) and may contain calcification (6). They may appear hyperdense on precontrast CT scans, possibly due to a high protein content, prior bleeding, the abundance of polymorphonuclear leukocytes, saponification of the debris to calcium soaps, or deposition of iron-containing pigment (6). Although CT demonstration of a smooth margin and the absence of invasion of surrounding structures helps differentiate a benign mass from malignant tumors and concurrent infection (7), distinguishing between epidermoid cyst and other presacral cystic masses may be difficult.

In intracranial epidermoid cysts, although MR signal

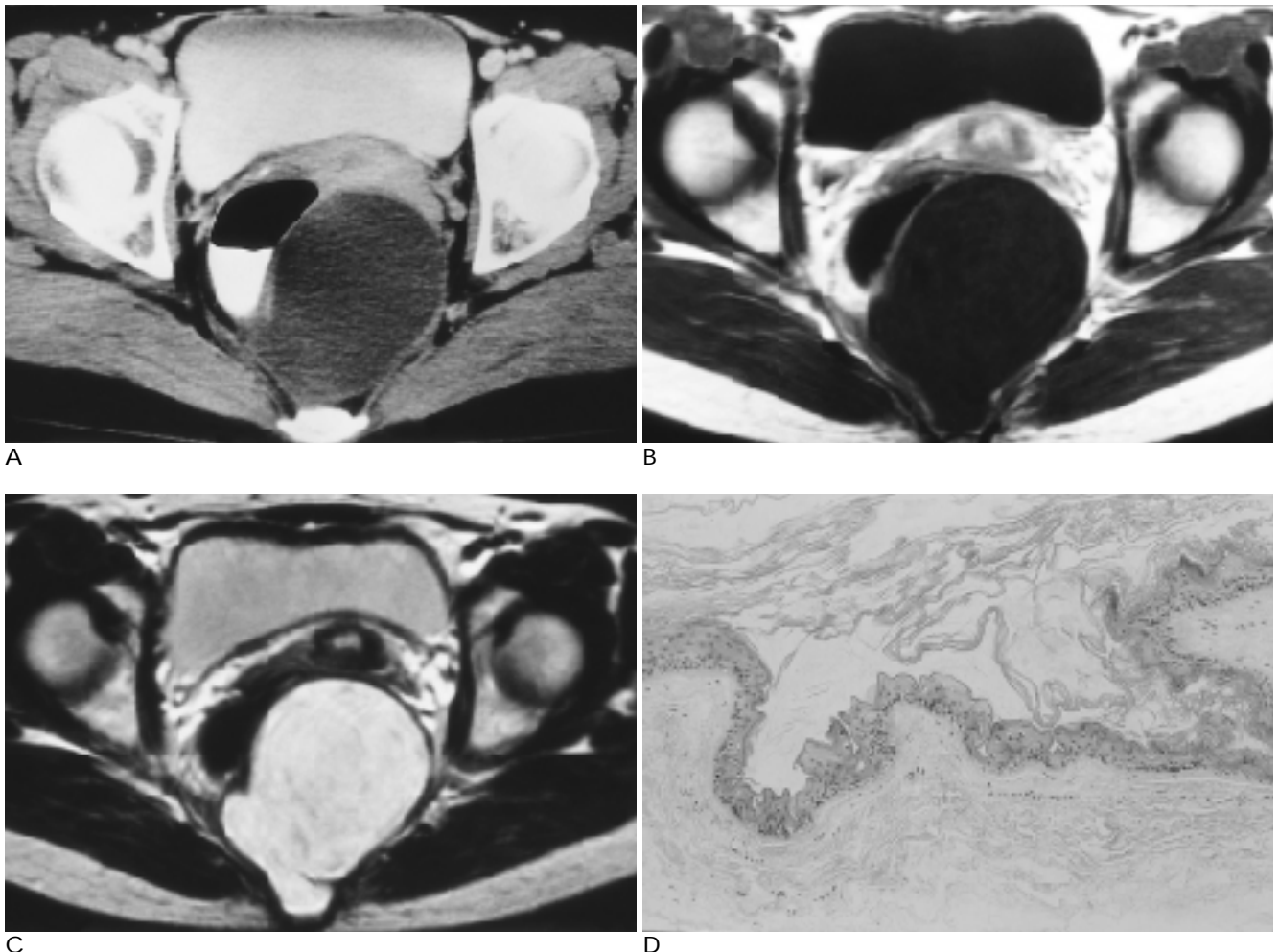


Fig. 1. 35-year-old woman with a presacral epidermoid cyst.

A. Enhanced CT scan shows a well-defined hypodense mass with thin wall anterior to the sacrum. The rectum is displaced to the right and anteriorly by the mass.

B. On unenhanced T1-weighted MR image, the mass shows heterogeneously low signal intensity.

C. On T2-weighted MR image, the mass shows heterogeneously high signal intensity with a lobulated contour.

D. Photomicrograph shows fibrous tissue lined by stratified squamous epithelium containing keratinous materials. (H & E,  $\times 100$ )

intensity patterns can be variable, the most common MR findings have been reported as a cyst with a thin wall, hypointensity on T1-weighted images, and hyperintensity on T2-weighted images (5, 6). Epidermoid cysts have usually shown heterogeneous signal intensity on T1- and T2-weighted MR images (5). The MR imaging appearances in our case are similar to those of intracranial epidermoid cysts. The MR characteristics of epidermoid cysts depend on the relative composition of cholesterol and keratin within the cyst (5). Their heterogeneous signal intensity, as seen on both T1- and T2-weighted MR images, is due to keratinous materials.

The differential diagnosis of presacral cystic masses includes dermoid cyst, tailgut cyst, duplication cyst, anal gland cyst, and anterior meningocele (7-9). A dermoid cyst is lined with squamous epithelium with dermal appendage, while a tailgut cyst is a congenital lesion characterized by the presence of cysts lined with multiple, various types of epithelia such as columnar, squamous, or transitional. A duplication cyst is lined with columnar or cuboidal epithelia and has a smooth muscle. A dermoid cyst usually has fat in the cystic lesion, and can be diagnosed on CT or MRI. Most reported MR findings of other presacral cystic masses have described homogeneous signal intensity on both T1- and T2-weighted images (8-10). Although heterogeneous signal intensity can also be seen in cases of hemorrhage, calcification or high protein content within a cyst, subtle signal heterogeneity on both T1- and T2-weighted images is a characteristic findings of epidermoid cysts. To confirm the usefulness of heterogeneous signal intensity on MR imaging for the differentiation of epidermoid cyst

from other presacral cystic masses, further evaluation is necessary.

In summary, we describe the CT and MR findings of a presacral epidermoid cyst seen on CT as a thin walled low density mass, and on T1/T2-weighted MR images as a heterogeneously low/high signal intensity. Epidermoid cysts should be included in the differential diagnosis of presacral masses, and the subtle heterogeneous signal intensity seen on both T1- and T2-weighted MR images may be helpful for their differential diagnosis.

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CT		MR		: 1		1
		1가				
		2가				
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		(epidermoid cyst)				(keratinized squamous
epithelium)		35				CT MR
CT		가		, MR		T1
, T2		가				