

## A rare case of epidermoid cyst of perineum: Diffusion-weighted MRI and ultrasonography findings

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In the differential diagnosis of perineal cystic lesions, a wide range of lesions can be considered, but perineal epidermoid cyst is rare. We present a case of perineal epidermoid cyst, a man with a complaint of painless perianal mass who appeared at the general surgery clinic. Ultrasonographic and conventional magnetic resonance imaging (MRI) findings are noted along with the diffusion-weighted MRI findings. To our knowledge, there has been no specific study in the literature up to now focusing on the value of diffusion-weighted MRI findings in the differential diagnosis of perineal cystic lesions; this technique may be useful.

### Case report

Epidermoid cyst, also known as epidermal inclusion cyst, is a retention cyst that is trapped in the epithelial layer of dermis. Only a few cases of perineal epidermoid cysts have been reported in the literature (1, 2).

A 35-year-old Caucasian man complaining of painless perianal mass came to the general surgery clinic. Physical examination revealed a subcutaneous, mobile, elastic mass in the right perianal region that measured 3x4cm. The patient had a medical history of undescending left testis. His baseline laboratory findings were within normal limits. The mass was evaluated with ultrasound, which depicted a well-defined, oval, hypoechoogenic mass lesion with posterior acoustic enhancement. Within the lesion were discrete

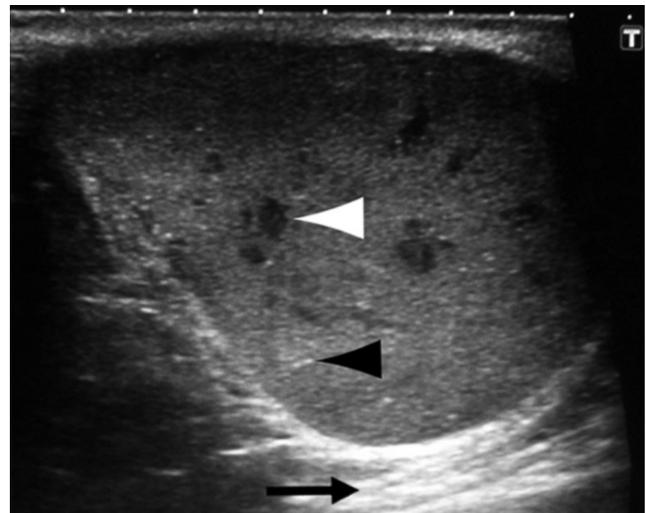


Figure 1. 35-year-old man with epidermoid cyst of perineum. Ultrasonography revealed well-defined, oval hypoechoogenic mass lesion with posterior acoustic enhancement (black arrow). Within the mass lesion, echogenic foci (black arrowhead) without posterior shadowing and anechoic cystic spaces (white arrowhead) appeared.

echogenic foci without posterior acoustic shadowing and anechoic cystic spaces (Fig. 1). After sonographic examination, the diagnosis of perineal cyst was considered, and for

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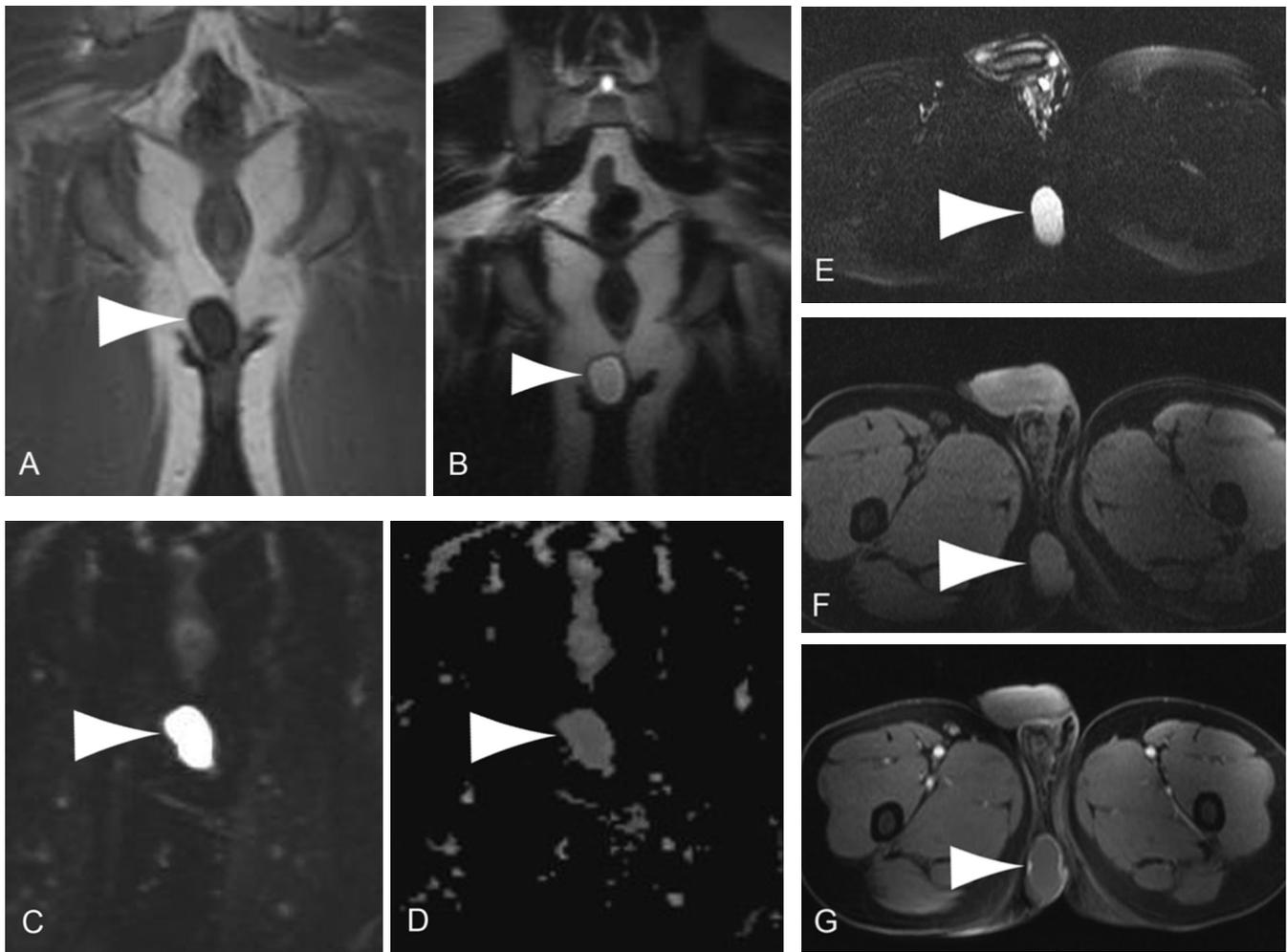


Figure 2. 35-year-old man with epidermoid cyst of perineum. Mass-oriented MRI includes (A) coronal T1WI, (B) coronal T2 WI, (C) diffusion-weighted image (b:1000 s/mm<sup>2</sup>), (D) ADC mapping with calculated ADC value of 1.01, (E) axial fat-suppressed T2WI, (F) axial precontrast T1WI, and (G) axial gadolinium-enhanced T1 WI views. The lesion is indicated with a white arrowhead (A, C, D) and a white arrow (B, E, F, G).

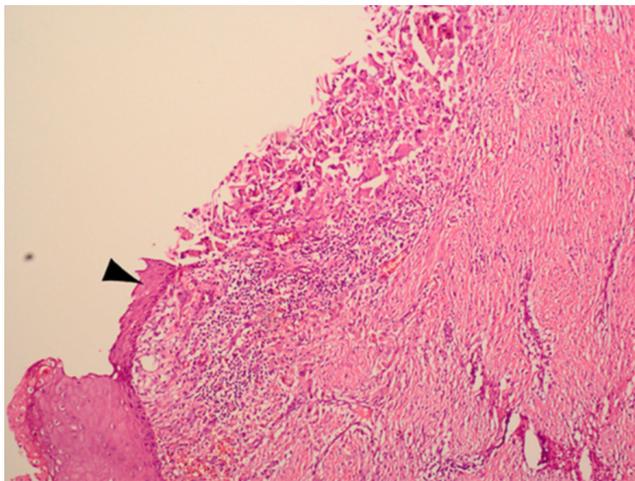


Figure 3. 35-year-old man with epidermoid cyst of perineum. X10 preparation stained with hematoxylin-eosin shows a cyst wall lined with stratified squamous epithelium with distinct granular layer (black arrowhead).

further characterization of the lesion, MRI with gadolinium was performed. The mass appeared hypointense on T1-weighted images (Fig. 2A). T2-weighted images (Fig. 2B) and fat-suppressed, T2-weighted images (Fig. 2E) demonstrated a hyperintense mass lesion. After gadolinium injection, peripheral thin enhancement was noted (Fig. 2G). DW MRI revealed significant diffusion restriction (Figs. 2C and 2D) with a calculated ADC value of 1.01.

Under general anesthesia, the mass lesion was removed surgically. During surgery, the cyst ruptured. After histopathologic evaluation, the mass was confirmed as an epidermoid cyst (Fig. 3).

### Discussion

Epidermal cysts are lined by stratified squamous epithelia and filled with keratin. The pathogenesis of epidermal cysts consists of a proliferation of epidermal cells within a confined cavitation of dermis (1). Epidermoid cysts are approximately twice as common in men as in women (1). They may occur at any age; however, they are most commonly seen during the third and fourth decades of life. Most frequently, an epidermal cyst occurs on the face, scalp, neck, and trunk; perineal involvement is very rare (3). Although intracystic hemorrhage and malignant transformation of epidermoid cysts are unexpected, a few cases are reported in the literature (1-3). The differential diagnosis of perineal cysts should consider the following: abscess, pilonidal cyst/sinus; hidradenitis; trauma; perianal dermatoses, including anal duct/gland cysts; benign teratomas; and anal/skin cancer, including malignant teratomas and teratomas with malignant transformation (4).

Unruptured epidermoid cysts characteristically display well-defined mass lesions with low signal intensity, with some bright foci on T1-weighted MR images and high signal intensity on T2-weighted MR images. Extracranial epidermoid cysts can display discrete low signal intensity foci within the lesion on T2-weighted MRI (5). According to Hong et al., this imaging feature can be used to differentiate epidermoid cysts from other cystic lesions (3).

Our case does not show discrete low-signal intensity on T2-weighted MRI. Thin peripheral enhancement is characteristically noted after contrast administration. The imaging characteristics of intracranial epidermoid cyst are slight hyperintensity or isointensity to cerebrospinal fluid on T1 and T2 MR images. Most epidermoid cysts do not show contrast enhancement; however, minimal rim enhancement can be noted in 25% of cases (6). The most significant differential diagnosis to be considered for epidermoid cyst is an arachnoid cyst (6, 7). With conventional MRI, these two lesions cannot be distinguished for certain because they show almost the same signal intensities on T1- and T2-weighted MRI (7). DW MRI is favored for the differential diagnosis of intracranial epidermoid cysts (6). Epidermoid cysts show diffusion restriction, but arachnoid cysts do not (6, 7).

After the sonographic evaluation of the lesion, we considered epidermoid cyst as the initial diagnosis and performed DW-MRI; the findings are compatible.

To our knowledge, no specific study in the literature focuses on the value of DW MRI findings in the differential diagnosis of perineal cystic lesions. Therefore we had no opportunity to compare the imaging findings between our case and similar lesions. Nevertheless, histopathologic verification and coherent imaging findings in our case suggest that DW MRI can be of use in identifying perineal epidermoid cysts.

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