Treatment of Anterior Sacral Meningocele
—Case Report—

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Abstract
A 30-year-old female presented with a long history of dysmenorrhea and severe constipation. Radiological evaluation and magnetic resonance imaging revealed findings characteristic of an anterior sacral meningocele. Surgical treatment through the posterior transsacral approach failed, because the neck and orifice of the meningocele were too large to perform a simple neck ligation. A second operation successfully resected the connecting dural stalk of the meningocele and reconstructed the thecal sac. Microsurgical reconstruction of the thecal sac through the transsacral approach is a favorable option even for a large meningocele with a wide neck and ostium.

Key words: anterior sacral meningocele, posterior transsacral approach

Introduction
Anterior meningocele is an extremely rare congenital anomaly involving herniation of the dural sac through a defect in the anterior surface of the sacrum. Bryant4) reported the first case in 1837, since then only 148 patients have been described. Diagnosis is simple based on the unique clinical and radiological findings from plain roentgenography, myelography, computed tomography (CT)6'8'12l and, more recently, magnetic resonance (MR) imaging. We report a patient with a typical anterior sacral meningocele and discuss some problems encountered during treatment.

Case Report
A 30-year-old unmarried female presented with dysmenorrhea since menarche. She had also suffered from severe constipation for more than 20 years and had used various laxatives every day, including frequent enemas.

Physical and neurological examinations were unremarkable. Pelvic ultrasonograms demonstrated a large presacral mass and precontrast CT scans revealed a communication between the mass and the sacral thecal sac. Plain roentgenographs demonstrated the classic scimitar bone defect (Fig. 1). Myelograms and postmyelographic CT scans demonstrated influx of dye into the cyst. MR images clearly demonstrated that the large presacral cyst con...
tained cerebrospinal fluid and caused anterior and lateral flexion of the uterus (Fig. 2 left). No other anomalies or mass lesions were present in or near the pelvic cavity. The diagnosis of anterior sacral meningocele was based on these clinical and radiological findings.

An operation was performed using the posterior transsacral approach. The neck and orifice of the meningocele were too large to allow a simple neck ligation. The cyst was closed by suturing the posterior surface of the dura around the orifice to form watertight seal, although the dura around the orifice was extremely thin. MR images 2 weeks after the operation revealed the same presacral cystic mass persisted. A second operation was performed 1 month later using the same approach. The dura was dissected around the orifice and completely freed from the cyst under the operating microscope. The thecal sac and nerve sleeves were reconstructed by firmly suturing the dura in a “hand-in-glove” fashion (Fig. 3). In addition, some pieces of lyophilized dura were attached to the suture line with fibrin adhesive.

Postoperatively, she complained of unilateral perianal numbness which improved within 1 month. Her constipation and dysmenorrhea also improved. MR images 12 months later found no presacral cyst (Fig. 2 right). She delivered a healthy female infant without complications 2 years after the operation.

**Discussion**

Villarejo et al. reviewed 148 cases of this unusual anomaly. The characteristic clinical features are well described in previous papers: dominant in females, usually diagnosed in the third decade, lack of neurological deficits, non-specific symptoms such as constipation, dysmenorrhea or urinary incontinence, and various associated anomalies or presacral tumors. Our patient had almost all these classic clinical features, except for the absence of associated anomalies or neoplasms. MR imaging clearly reveals the size and shape of the cyst and provides information about the relationship of the cyst to other pelvic organs and associated anomalies or tumors. This noninvasive examination is advantageous for female patients in the late teens or early twenties, who make up the majority of patients with this anomaly, especially when pregnant.

The problems we encountered in our patient were during treatment. Two surgical approaches have been described: 1) the posterior transsacral approach for simple neck ligation or transdural suture of the cyst ostium, and 2) the anterior abdominal approach for oversewing of the cyst. Removal of the sac entails the risk of bladder sphincter disturbance and rectal perforation in such cases. Smith and Davis advocated a combined intraabdominal approach, while Abernathey et al.
presented an elegant microsurgical reconstruction of the thecal sac using a "hand-in-glove" dural repair through the posterior transsacral approach in their series of giant sacral schwannomas.

The failure of our initial operation was due to the choice of simple transdural suturing of the cyst ostium, even though the orifice and neck were very large and the dura around the ostium was extremely thin. In our second operation, we completely resected the connecting dural stalk and reconstructed both the thecal sac and nerve sleeves under the operating microscope, which allowed the dura to become more pliable and flexible and reduced tension on the suture. The suture was reinforced with fibrin adhesive and pieces of lyophilized dura, which were helpful in obtaining a watertight closure. We think that this is an alternative and safe treatment, even for a large meningocele with a wide neck and ostium, using the posterior transsacral approach.

References

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