Intraperitoneal CSF Pseudocysts Following Ventriculo-Peritoneal Shunts

S. Chandra
V. Bhatnagar
D.K. Mitra

During the last two decades ventriculo-peritoneal (VP) shunts have been increasingly used for the management of hydrocephalus in children. A wide spectrum of complications have been noted after this procedure. This communication deals with intraperitoneal pseudocyst formation following VP shunts.

From the Department of Pediatric Surgery, All India Institute of Medical Sciences, New Delhi 110 029.

Reprint requests: Dr. D.K. Mitra, Additional Professor, Department of Pediatric Surgery, All India Institute of Medical Sciences, New Delhi 110 029.

Received for publication: July 4, 1991;
Accepted: September 3, 1992

Case Reports

Case 1: This 6-year-old girl had been initially treated for congenital hydrocephalus at the age of 45 days by a ventriculoatrial (VA) shunt. Subsequently, she underwent revision of the lower end at 2½ years of age and the VA shunt was converted to VP shunt using the Upadhyaya shunt valve with placement of the peritoneal end in the sub-hepatic space. Six months following this revision, the patient presented with complaints of headache and non-bilious vomiting. On examination, the child was irritable and a non-tender cystic lump could be felt occupying the right hypochondrium and epigastric region. There was no guarding or rigidity. Clinically, the shunt reservoir required very high pressure to empty it. Routine laboratory investigations were normal; there was no leucocytosis. On abdominal exploration a large fluid filled cyst was found situated between the liver and stomach, its antero-inferior wall being formed by the omentum. The peritoneal end of the shunt was within this cyst. The cyst was partially excised and as the cerebro-spinal fluid (CSF) drainage was normal the distal end of the shunt was resited in the pouch of Douglas. The examination of CSF from the shunt and the cyst was biochemically, microscopically and bacteriologically normal. Seven years later she is well and has not had recurrence of CSF pseudocyst.

Case 2: This 5-year-old boy had presented with congenital hydrocephalus and a VP shunt was done at the age of 1 month using the Upadhyaya shunt valve. Four years later the child was brought to the hospital with complaints of headache, non-bilious vomiting, and lethargy for 2 weeks. On examination there was a large non-tender cystic swelling occupying most of the right side of the abdomen. The distal
end of the shunt opened with increased resistance. Ultrasound examination revealed a large area of fluid collection extending from the epigastric to hypogastric regions and surrounded by loops of bowel. Routine laboratory investigations were normal; there was no leucocytosis. On abdominal exploration a large cyst occupying the right side of the abdomen was found. The anterior and medial walls of this cyst were formed by the omentum and matted loops of small bowel, respectively. The cyst wall was partially excised. There was a free flow of CSF from the shunt and the peritoneal end was re-sited in the suprahepatic space. The examination of CSF from the shunt and cyst was normal. Histopathological examination of the cyst wall showed fibrous tissue with chronic inflammatory cells. Five years later the child is well and has no recurrence of the cyst.

Discussion

The unusual complications of VP shunts include ascites, inguinal hernia, intussusception, peritonitis, vaginal perforation, and pseudocyst(1,2). Guiterrez and Raimondi(3) reported pseudocysts in 0.7% of their patients. We have performed 245 VP shunts in the last 15 years and only 2 patients have developed pseudocysts.

Ultrasonography is the best diagnostic procedure(6). It not only diagnoses the lesion accurately but also demonstrates the relationship of the shunt tube with the pseudocyst.

The pathophysiology of encystment is not clearly understood. Infection, peritoneal adhesions, high protein content of CSF and an inflammatory response to the catheter material have been postulated as the responsible factors(3-5). In the cases being reported there was no evidence, either clinical or laboratory, to suggest infection or high protein content of the CSF. The possible causation could be an idiosyncratic inflammatory response to either the shunt or the CSF, both being foreign to the peritoneal cavity. The absence of recurrence may be a manifestation of an adaptive process.

Both the patients under review presented with symptoms of raised intracranial tension. The symptoms were most likely due to functional obstruction produced by an increased pressure within the cyst with a pressure gradient exceeding that required for adequate CSF drainage through the shunt. The symptoms disappeared after the surgical drainage of the cyst and resiting of the peritoneal catheter in both the cases. CSF pseudocysts have also been treated by aspiration of the cyst fluid or by exteriorisation of the peritoneal catheter and replacement of the distal end into the peritoneal cavity after the infection has resolved(3,5,6). Both the present cases have done well with abdominal exploration, partial excision of the cyst wall and the peritoneal catheter. Recurrence of CSF pseudocysts has been reported by some authors(3,4) and has been observed to be often associated with peritonitis(7-9).

REFERENCES


NOTES AND NEWS

SECOND NATIONAL CONGRESS OF INDIAN SOCIETY FOR PRENATAL DIAGNOSIS AND THERAPY

The Second National Congress of Indian Society for Prenatal Diagnosis and Therapy is to be held from **February 19 to 21, 1993** at the All India Institute of Medical Sciences, New Delhi 110 029.

**Scientific Programme**

**Workshop (February 19-20):** On Obstetrical Techniques and Laboratory Diagnosis of Fetal Sex, Chromosomal and Biochemical Disorders plus Thalassemia and Muscular Dystrophy.

**Congress (February 20-21):** Guest lectures by leading International and National experts plus free papers and posters.

**Post-Congress Training Course (February 22-25):** Genetic Counselling, Biochemical and Molecular Genetic Techniques.

For further details, contact:

**Dr. I.C. Verma,**
Organizing Secretary,
Genetic Unit, Department of Pediatrics,
Old Operation Theatre Building,
All India Institute of Medical Sciences,
Ansari Nagar, New Delhi 110 029.
Phone: 661123, 6864851 Ext. 338
Fax: 11-6886646 or 11-6862663,
Telex: 31-73042-AIMS-IN