Management Of Maternal Hydrocephalus: A Case Report

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Abstract : During pregnancy, a cerebrospinal fluid (CSF) shunt operation may be necessary due to hydrocephalus. Although many authors have suggested that pregnancy in a patient with a ventriculoperitoneal (VP) shunt for maternal hydrocephalus, generally has a normal outcome, VP shunt malfunctions appear to be common in pregnancy due to increased intraperitoneal pressure. In this paper, we present a pregnant woman with hydrocephalus who required multiple revisions of a VP shunt. We consider that when a pregnant woman develops hydrocephalus requiring shunting, a ventriculoatrial (VA) shunt should be preferred.

Key Words : Cerebrospinal fluid shunts, maternal hydrocephalus, pregnancy, complications

INTRODUCTION

After three decades of progress in shunting procedures, increasing number of women with indwelling cerebrospinal fluid shunts for the treatment of hydrocephalus in infancy are reaching maturity and may become pregnant.

Although complications are fewer and less severe with ventriculoperitoneal shunt than with ventriculoatrial shunt in healthy persons, malfunction of VP shunt occurs more frequently during pregnancy.

In this paper,we present a pregnant woman with hydrocephalus due to a pontocerebellar angle tumour who required multiple revisions of a VP shunt. Following a VP shunt operation, and in spite of revision CSF collection recurred. Symptoms improved after replacement of the VP with a VA shunt suggesting the benefit of VA shunting during pregnancy.

CASE REPORT

A 34-year-old woman gravida 5, para 4 in the 31st week of pregnancy had a four-month history of intermittent headache, nausea, vomiting and progressive gait disturbance with frequent falls.

On examination, she was conscious and cooperative but irritable. Fundoscopy revealed bilateral severe papilloedema. There was mild horizontal nystagmus to the left, marked truncal ataxia, sensory deficit in the distribution of the V1 division of the fifth nerve, peripherial facial palsy and total hearing loss in the left. Computed tomography (CT) scan disclosed obstructive hydrocephalus caused by a left pontocerebellar angle tumour measuring 5x5x2 cm., and entirely compressing the fourth ventricle. The patient underwent a VP shunt for the treatment of severe obstructive hydrocephalus. Postoperative CT scan showed that the hydrocephalus had decreased in extent. Meanwhile CSF collection occurred gradually along the peritoneal catheter. At exploration of the peritoneal tip, CSF under high pressure spurted out from the dissected extraperitoneal area. The peritoneal catheter within the peritoneal cavity was easily removed. Neither fibrin nor tissue was found around the tip and clear cerebrospinal fluid flowed spontaneously. Because no adhesion could be identified by gross examination, the same catheter was reinserted at another site into the peritoneal cavity. But, CSF collection recurred following the revision.

Thus, the VP shunt was converted to a VA shunt. The last postoperative course was completely uneventful.

DISCUSSION

Although VP shunt has abdominal complications such as pseudocyst, intractible ascites, intestinal obstruction and perforation, more recent reviews have indicated that VP shunt may be superior overall to VA shunt (7,9).

There are few articles about patients treated with VP shunt for maternal hydrocephalus (1,3,4-6,8,10,11). Some authors believed that the patient with a VP shunt for maternal hydrocephalus generally has a normal outcome and that the function of the shunt is unaffected by pregnancy but the malfunction of CSF shunts during pregnancy has recently been reported (1, 3,4,8,10,11).

The mechanism of VP shunt malfunction is obscure. No sign of infection or pseudomembrane around the peritoneal catheter was detected. In the reported cases, malfunction of VP shunt was detected at about 20th week of pregnancy (4,8,10).

As a cause of malfunction, Kleinman et al. (8) suggested that the peritoneal catheter was compressed between the enlarged uterus and other viscera like stomach and liver.

Although the exact intraabdominal pressure during pregnancy has not been measured, it is considered that it would increase in the 3rd trimester (1, 2,4).

Some authors (1,4) related this complication to functional obstruction of the peritoneal catheter from increased intraabdominal pressure due to pregnancy.

In our case, we could not detect any mechanical cause of malfunction of the peritoneal catheter and when we dissected the prior operation area in the abdomen, we witnessed a high pressure CSF collection suggesting that the abdominal pressure had increased.

In conclusion, we suggest that when a patient develops hydrocephalus during pregnancy requiring shunting, VA shunt should be preferred to avoid problems which might be encountered with VP shunts.

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