

Acoustic Neuroma and Hydrocephalus in Pregnancy: A Case Report

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ABSTRACT

The diagnosis of acoustic neuroma during pregnancy is often delayed because symptoms like nausea, vomiting, headache and tinnitus, which are nonspecific, are often attributed to pregnancy itself. Even though vestibular schwannomas rarely present during pregnancy, symptoms may appear or worsen particularly in this period.

Keywords: Acoustic neuroma, cesarean section, pregnancy

The diagnosis and management of acoustic neuroma in a pregnant woman presents a real challenge to the obstetrician, neurosurgeon and anesthesiologist who must work as a close team.¹ Since nausea, vomiting, headaches and vertigo are common complaints both during pregnancy and in the presence of brain tumors, the later ones though rare, may be underdiagnosed or even missed in the pregnant woman, until real neurological signs appear. Though case reports of acoustic neuroma in pregnant patients are few, the signs and symptoms of these tumors can dramatically worsen during the last 3 or 4 months of pregnancy. Advances in techniques of general anesthesia permit urgent operations on pregnant women with minimal risks to the fetus and mother.²

CASE REPORT

A 26-year-old primigravida with 8½ months of amenorrhea and well-appreciated fetal movements got

admitted to our hospital with complaints of headache and vomiting since 15 days, tingling sensation on right cheek since 7 days, blurring of vision since 3 days. Headache which was localized to right side of face, more in the morning was associated with vomiting, which was projectile in nature. Headache usually subsided after vomiting.

Tingling sensation on the right cheek since 7 days, aggravated in the morning, and on exposure to cool breeze, relieved on exposure to sun light. Blurring of vision was more on the right side, not associated with pain, diplopia of right eye, no floaters and no aggravating or relieving factors. She was married for 1 year, nonconsanguineous marriage, her last menstrual period (LMP) was on 1/1/09 and expected delivery date (EDD) - 8/10/09 with gestational age of 34 weeks + 2 days.

On examination, patient was moderately built and nourished, conscious, co-operative and well-oriented. Her pulse rate was 82 beats/min and blood pressure (BP) was 130/80 mmHg.

On neurological examination, she was conscious, oriented, cranial nerves intact, except for tingling sensation on right side of face in trigeminal nerve distribution. Gross motor function and muscle strength were normal, superficial and deep tendon reflexes were normal and her cerebellar functions were intact. Abdominal examination revealed symphysiofundal height of 34 cm. Uterus 34 weeks size, fetal heart rate (FHR) 134/min, regular.

On ophthalmic examination, she could perceive only hand movements close to face and vision in left eye was 6/36. Both the pupils were 3 mm, round, regular, reactive

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to light. Fundoscopic examination was suggestive of left optic disc drusen (Fig. 1).

Complete hemogram, urine examination and renal and liver function test results were normal. USG examination was suggestive of single live intrauterine pregnancy of 30 ± 3 weeks of gestation in cephalic presentation. Placenta: Body anterior Grade 1, amniotic fluid index (AFI) - 9 cm. Estimated fetal weight (EFW) - 1.5 kg.

Diagnosis

Magnetic resonance imaging (MRI) showed a large, well-defined, extra-axial infratentorial mass lesion seen in right CP angle (Fig. 2). Mass was measuring about $4.4 \times 3.5 \times 4$ cm. Medially, there was extension across midline. There was slight extension into the internal auditory canal. Prominent CP angle cistern mass from cerebellum-cerebrospinal fluid (CSF) cleft. Fourth ventricle was squashed and displaced to left. Midbrain and pons were deviated to left. Right lobe of cerebellum was compressed and draped over the postero-inferior aspect of the mass. Lateral and third ventricles were moderately dilated (Fig. 3).

Treatment

In agreement with the neurosurgeons, the patient underwent emergency cesarean delivery under general anesthesia with controlled ventilation. Preoperatively, she received injection ranitidine 50 mg, injection metoclopramide 10 mg, injection phenytoin sodium 200 mg, injection 3% normal saline (NS) 100 mL. A single live preterm baby was extracted. The baby cried immediately after birth with Apgar score of 7 and 9 at one and fifth minute, respectively and 20 IU of oxytocin was added to RL.

Patient was hemodynamically stable during perioperative period, with occasional raise in BP managed with injection esmolol. Recovery was uneventful. One week after surgery, patient was referred to National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore (India) where she underwent ventriculoperitoneal (VP) shunting. Following the procedure, patient was shifted back home with the advice for definitive surgery at later date.

After 2 months of VP shunt operation, the patient had similar complaints and rapid diminishing of vision and progressive hearing loss, right (Rt) side V and VIII nerve palsy and bilateral cerebellar signs were positive (Rt >> Lt). She could perceive only light close to face. She underwent right retromastoid suboccipital craniotomy and total excision of acoustic neuroma. There was a

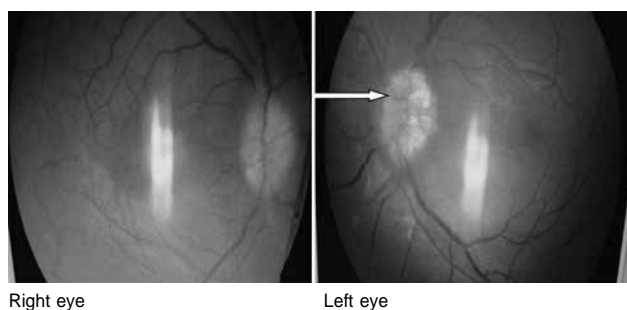


Figure 1. Left optic disc drusen.

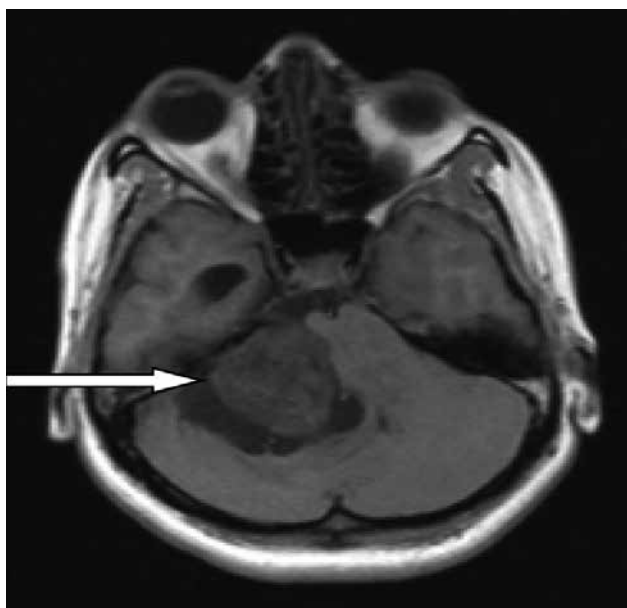


Figure 2. Extra-axial infratentorial mass lesion.

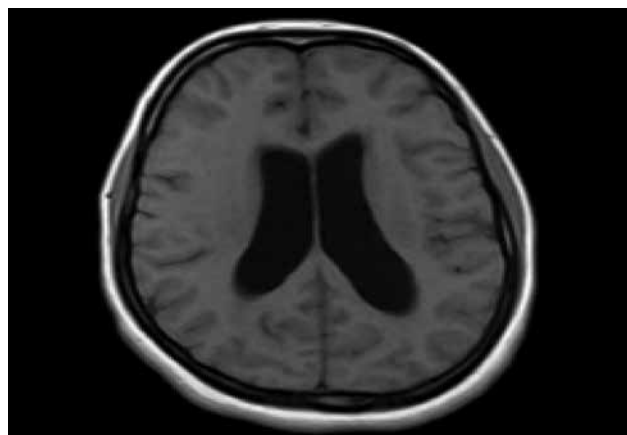


Figure 3. Moderately dilated lateral ventricles.

cystic component posteriorly so facial nerve could not be preserved. Immediate postoperative period, patient had Rt LMN (lower motor neuron) facial palsy and lateral rectus palsy in the Rt eye, so she underwent Rt tarsorrhaphy. Histopathology report was suggestive of vestibular schwannoma.

DISCUSSION

Acoustic neuromas constitute 6% of all intracranial tumors. The diagnosis of acoustic neuroma during pregnancy is often delayed because symptoms like nausea, vomiting, headache and tinnitus, which are nonspecific, are often attributed to pregnancy itself. Headache and high BP in advanced pregnancy may be mistaken for pre-eclampsia. Small acoustic neuromas are usually accompanied by hearing abnormalities or tinnitus.

Large tumors are accompanied by headache and vomiting due to obstructive or communicating hydrocephalus, cerebellar signs such as ataxia and there is involvement of cranial nerves, including the trigeminal, facial, glossopharyngeal and vagus nerves (trigeminal nerve was involved in the present case). When an acoustic neuroma with no neurological signs and with normal intracranial pressure (ICP) is diagnosed during pregnancy, vaginal delivery may be planned with a low maternal risk.

In the case of an advanced pregnancy and a large symptomatic neuroma, raised ICP and hydrocephalus, the best maternal and fetal outcomes are offered by emergency cesarean delivery after drainage of CSF, followed by definitive neurosurgery. Even though the incidence of vestibular schwannomas is not higher in pregnancy than in non-pregnant age-matched patients, it may become symptomatic in pregnancy. Failure to

diagnose a large lesion compressing the brainstem may cause sudden deterioration, and an attempted delivery in the presence of untreated high ICP can be disastrous. If performing cesarean section (either for obstetric indications or due to fears regarding ICP), general anesthesia offers greater control of ICP intraoperatively, than does regional anesthesia. Attention should be paid to raised ICP and risk of aspiration for the mother, placental blood flow and risk of immediate neonatal respiratory depression for the fetus.³

COMMENT

Only multidisciplinary and co-operative teamwork of obstetrician, neurosurgeon, anesthesiologist and pediatrician can lead to a possible excellent prognosis in difficult cases of acoustic neuromas, diagnosed in late stage of pregnancy.

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