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Can a head get bigger than this? Report of a neglected case of hydrocephalus

Sir,

Hydrocephalus is among the common pediatric neurosurgical conditions requiring surgical intervention. We present an extremely neglected case of congenital hydrocephalus. A 7-month-old, male child from rural India, a product of a non-consanguineous marriage, born preterm at 34 weeks by Cesarean section (due to antenatal diagnosed hydrocephalus), presented to our Outdoor Department with a history of progressively enlarging head size and developmental delay. At the time of presentation, his head circumference was 93 cm [Figure 1]. Sunset sign was present with dilated subcutaneous veins. Magnetic resonance imaging (MRI) of the head revealed triventriculomegaly with a normal-sized, fourth ventricle, with a thin cortical mantle suggestive of aqueductal stenosis [Figures 2 and 3].

Hydrocephalus is a common pediatric neurosurgical condition and a ventriculoperitoneal shunt is the most common neurosurgical procedure performed. Hydrocephalus is a condition where there is an excessive accumulation of cerebrospinal fluid (CSF) under pressure and at times under no pressure, resulting from impaired circulation and absorption of CSF or under some other circumstances from increased production by a choroid plexus papilloma. Hydrocephalus may be communicating or non-communicating (obstructive), where there is an obstruction of the ventricular system within the confinement of the brain. Common causes of hydrocephalus in infants include: aqueductal stenosis and post meningitic hydrocephalus in infants.

Such a massive head due to neglected hydrocephalus poses a management dilemma. 'No surgical intervention in patients with a cortical mantle thinner than 1.5 cm,' is long stressed in literature. We discussed the management plan with the parents of the patient in detail.

Placement of shunt in the massive head was challenging, as positioning the patient was difficult. A vertical skin incision should be avoided as the scalp in these patients is extremely thin and such incisions run the risk of wound dehiscence and hardware exposure. Particular care had to be taken to make a small hole in the dura to avoid pseudomeningocele formation. We used the tip of the monopolar cautery to make a small hole in dura, in which the tip of ventricular catheter could fit snugly. Utmost care had to taken during tunneling, as the entry point of the ventricular end was at a much higher level and at an oblique angle to neck. Although a programmable shunt should ideally be placed, economic constraints did not allow using it. The complications in patients shunted with massive hydrocephalus are, subdural hematoma, ascites or pseudomeningocele, and the delayed

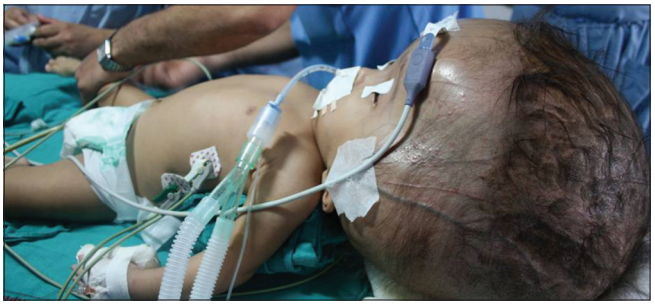

Figure 1: Clinical photograph of the patient showing a large head with dilated subcutaneous veins

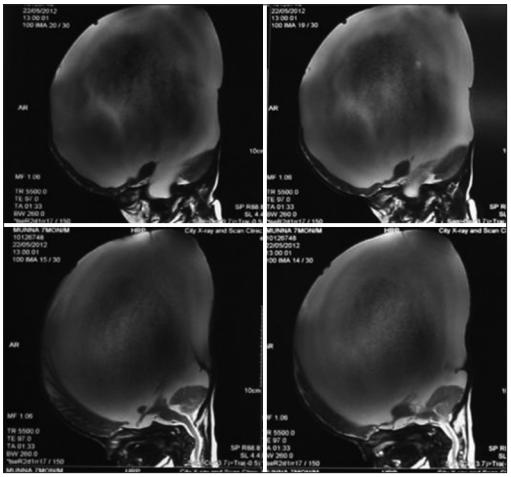

Figure 2: Sagittal section MRI showing enlarged ventricles with a normal-sized fourth ventricle

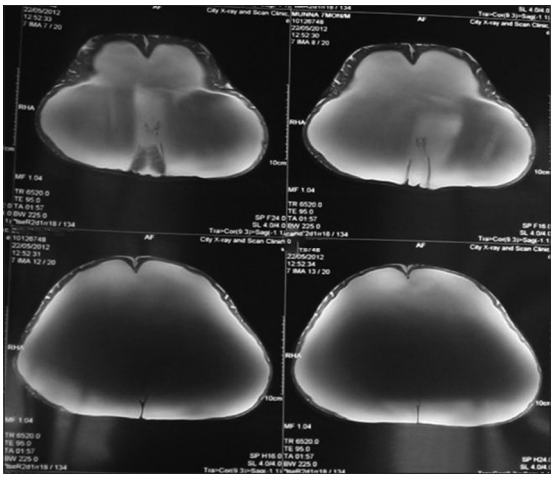

Figure 3: Axial section MRI brain showing ventriculomegaly

complications include overriding skull bones, migration of the shunt, and craniosynostosis.[1,2] Ventureyra *et al.* reported reduction cranioplasty for the problem of overriding bones.[1] Unfortunately, the patient was lost to follow up and the outcome was not known.

Despite advances in medical care, developing world neurosurgeons still face such cases, which pose management challenges and surgical difficulty.

Kanwaljeet Garg, Hitesh Kumar Gurjar, Pankaj Kumar Singh, Seema Singh[1], Bhawani Shankar Sharma

Department of Neurosurgery, All India Institute of Medical Sciences, [1]Department of Anatomy, Lady Hardinge Medical College, New Delhi, India

Address for correspondence:
Prof. Hitesh Kumar Gurjar, Department of Neurosurgery, All India Institute of Medical Sciences, New Delhi, India.
E-mail: hiteshgurjar@gmail.com

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