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Case Report
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Neonate with Stridor

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Presentation

Index female neonate was born at 38 weeks gestation, with birth weight of 2.38kg, to 30 years old primi gravida mother. Mother received prenatal care during pregnancy. She has total of 9 antenatal visits. First trimester ultrasound scan and Doppler scan were normal. Scan at 32 weeks showed estimated fetal weight on 16th centile; Doppler showed redistribution of blood flow in middle cerebral artery in foetus. Maternal Doppler showed increased resistance to blood flow in uterine arteries. Baby was born by emergency LSCS in view of presumed fetal compromised with thick meconium-stained liquor. Baby cried after birth however soon went into secondary apnea, requiring positive pressure ventilation for 30 seconds. APGARs were 6,7 and 8 at 1, 5 and 10 minutes respectively. The cord arterial PH was 7.099 and Base excess was -13. The placenta was normal (470g), with normal insertion of cord and no signs of maternal vascular hypo perfusion. Baby was admitted in NICU for respiratory distress soon after birth. There was no stridor or suprasternal tugging at birth. Baby was supported with nasal continuous positive airway pressure (CPAP). Chest radiograph was suggestive of transient tachypnea of newborn, serum electrolyte and calcium were also normal. Initial Neurosogram and septic screen were normal. Baby improved over the period of time, distress resolved around 48 hours of life and weaned off from CPAP. Baby has given direct breast feeding. Baby developed intermittent stridor and respiratory distress on day 3.

Discussion

Differential diagnosis

Differential diagnosis for stridor in neonatal period usually includes laryngomalacia, vocal cord palsy, laryngeal web, or cleft, choanal atresia, laryngeal atresia, congenital subglottic stenosis, tracheobronchomalacia, vascular compression and hemangiomas.

Actual diagnosis

In view of persistent stridor and distress work up was done, 2D- echo was normal; repeat x ray was improved, septic work up also normal. Neurological and other systemic examinations were within normal limits. Pediatric ENT surgeon opinion taken, advised for flexible laryngoscopy which was suggestive of bilateral vocal cord palsy (Figure 1).

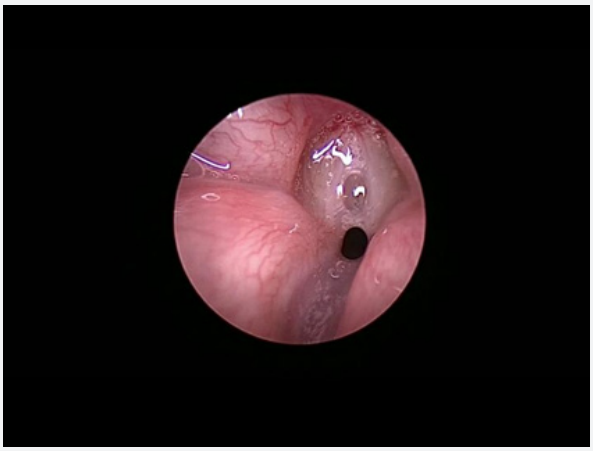

Figure 1

The Condition

Bilateral vocal cord palsy is not so common in neonatal period. It usually presents as inspiratory stridor and respiratory problem in most of the cases [1]. Diagnosis usually made by fiber optic flexible laryngoscopy with direct visualisation of pharynx and larynx, confirmed by rigid bronchoscopy [2]. In bilateral vocal cord paralysis around 30% to 60% have laryngeal anomalies [3-5]. The common causes for unilateral or bilateral vocal cord palsy are following cardiovascular surgery- PDA ligation, other upper GI surgeries, and traumatic delivery, central nervous system abnormality, intraventricular hemorrhage, and hydrocephalus. In some cases, paralysis may be secondary to the immaturity of nerve or muscle. Birth trauma that causes extensive tension in the neck can cause transient bilateral vocal cord palsy that can last for 6 to 9 months. Literature showed that vocal cord paralysis associated with Down's syndrome, 22q deletion and Robinow syndrome [6]. This commonly involves left recurrent laryngeal nerve because of its longer course and more vulnerable position. The incidence for CIBP is very low, probably < 1/100000 [7]. The spontaneous recover rate as per the literature is around 50% to 60% [8,9]. Maria Lensik and colleagues studied retrospectively 15 years data on population of children presenting with congenital idiopathic bilateral laryngeal paralysis. In their study they also found the spontaneous recovery rate around 65%. Spontaneous recovery usually occurred within the period of 2 months.

Treatment/ Management

The bilateral vocal cord palsy managed by depending on the way of presentation. Initial stridor and breathing difficulty managed by CPAP or Noninvasive ventilation. Few of the babies may require tracheostomy for breathing support. Those who are without tracheostomy might require to GERD tp prevent aspiration. Other options are Arytenoidectomy, Cordotomy, Laryngeal spacing, Botox injection, Neuromodulation, Gene therapy and Steam cell therapy.

Patient Course

In our case baby presented on day 3 of life with stridor and respiratory difficulty, all the initial investigations were normal. Baby improved with short course of steroids and nebulisation in 2 weeks. As we didn't find the cause for the laryngeal paralysis diagnosis kept as Congenital Idiopathic Bilateral Laryngeal paralysis (CIBP). Baby planned for MRI brain with cranial nerve course and short course of steroid. The parents were informed and agreed upon decision. Baby continued on tube feeding and high flow nasal canula (HFNC) support for next 5 days and advised for repeat laryngoscopy. Repeat laryngoscopy suggestive of bilateral improvement in movement of the cord. Left cord is moving with every breath movement and right cord movements are intermittent, with the diagnosis of bilateral vocal cord paresis. Parents advised to continue oral steroid for 2 weeks and tapper off gradually. On follow up baby improved clinically, stridor disappeared with no breathing difficulty and both vocal cord movements were normal.

Conclusion

CIBP is a rare condition usually present at birth with symptoms of stridor and breathing difficulty. Most of the bilateral cases require tracheostomy in immediate period. Cases related to birth trauma can recover spontaneously depending on the degree of trauma to nerves or muscle.

Lessons for Clinicians

1. Neonatal stridor though rare can be due to variety of causes.
2. Bronchoscopy will confirm the diagnosis
3. Vocal cord palsy during neonatal period is usually secondary to surgery, trauma, or congenital malformations.
4. CIBP though rare will improve with short courses steroid in 2 to 3 months.
5. Tracheostomy should also be considered if there is no improvement.

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