Birth brachial plexus injury

Incidence is 0.3–2.0 per 1000 live births (0.1% in infants with birthweight<4000 gm [1]). Rarely, a congenital case may be mistaken for BBPI [2]. Some contend that the plexus injury may occur when uterine contractions push the shoulder against the mother's pubic bone or with lowering of the shoulder with opposite inclination of the cervical spine [3].

Classification of BBPI injuries: Upper plexus injuries are most common, with about half having C5 & C6 injuries, and 25% involving C7 also [4]. Combined upper and lower lesions occur in ≈ 20%. Pure lower lesions (C7–1) are rare, constituting only ≈ 2% and seen most commonly in breech deliveries. Lesions are bilateral in ≈ 4%.

Risk factors

1. shoulder dystocia
2. high birth weight
3. primiparous mother
4. forceps [5] or vacuum assisted delivery
5. breech presentation [6]
6. prolonged labor
7. previous birth complicated by BBPI

Management

Most surgeons observe all patients until age 3 months. Conservative surgeons may wait up to 9 months. More aggressive surgeons will explore the plexus at age 3 months if not antigravity in deltoid, biceps or triceps. In cases of proven avulsion (pseudomeningocele and EMG indicative of a preganglionic injury), nerve transfers are a valid option at 3 months [7]. EMG may show signs of reinnervation, but the recovery may not be robust enough.

References

1)
Rouse DJ, Owen J, Goldenberg RL, et al. The effec- tiveness and costs of elective cesarean delivery for fetal macrosomia diagnosed by ultrasound. JAMA. 1996; 276:1480–1486

2) , 3)
Gilbert A, Brockman R, Carlioz H. Surgical Treatment of Brachial Plexus Birth Palsy. Clin Orthop.

4)
Boome RS, Kaye JC. Obstetric Traction Injuries of the Brachial Plexus: Natural History, Indications for Surgical Repair and Results. J Bone Joint Surg. 1988; 70B:571–576

5)
Piatt JH, Hudson AR, Hoffman HJ. Preliminary Experiences with Brachial Plexus Explorations in Children: Birth Injury and Vehicular Trauma. Neurosurgery. 1988; 22:715–723
6)
Hunt D. Surgical Management of Brachial Plexus Birth Injuries. Dev Med Child Neurol. 1988; 30: 821–828
7)
Anand P, Birch R. Restoration of sensory function and lack of long-term chronic pain syndromes after brachial plexus injury in human neonates. Brain. 2002; 125:113–122