Brachial Plexus Injury

Brachial Plexus Injury: injury to one or more nerve roots controlling sensory and motor function of the shoulder, arm, and hands, resulting in upper limb weakness and paralysis

ETIOLOGY / RISK FACTORS

- **Shoulder dystocia – greatest risk factor**
- Prolonged/difficult labour
- Instrumented birth (forceps or vacuum-assisted)
- Episiotomy
- Birth hypoxia
- LGA infants (>4.5kg)
- Maternal diabetes

Protective Factors
- Cesarean delivery
- Multiple gestation

CLASSIFCATION

- Erb palsy **(C5-C6)** – **most common!**
  - Waiter's tip posture
- Extended Erb **(C5-C7)**
- Klumpke palsy **(C8-T1)**
  - Hand weakness +/- horner syndrome
- Total plexus injury **(C5-T1)**
  - Flaccid arm

Erb Palsy

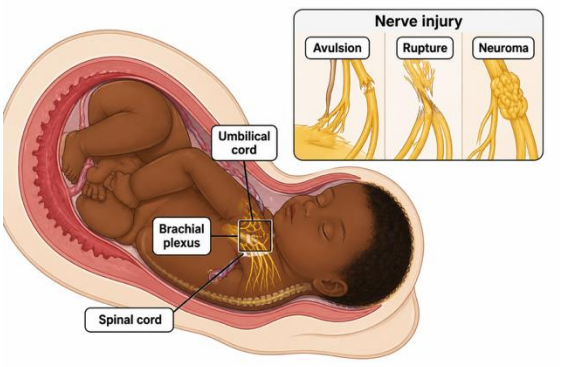
Klumpke Palsy

PATHOPHYSIOLOGY

- Traction injury to brachial plexus **during delivery**
- Severity ranges from **neuropraxia** (temporary), **axonotmesis**, **neurotmesis/root evulsion**
- Degree of nerve injury determines recovery

PRESENTATION

- Decreased or absent movement of affected arm
- Asymmetric **Moro reflex**
- **Posturing** depending on nerve roots involved
- Weak or absent grasp → **lower plexus** involvement
- Assess for **horner syndrome** (ptosis, myosis → root avulsion)



DIAGNOSIS

- **Clinical diagnosis** based on exam and weakness pattern
- Initially, imaging **not** routinely required

Key Pearls

- 80-90% of cases recover spontaneously
- Absence of biceps recovery **predicts poor outcome**

MANAGEMENT

- **Initially**: early referral to PT/OT, parent education on passive ROM, referral to peripheral nerve specialist
- **Ongoing**: serial exams to assess recovery (key milestone: return of biceps function)
- **Multidisciplinary referral (PT/OT, peripheral nerve specialist**) if absent active elbow ROM by 1 month

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Mohamed Hamour (Medical Student, University of Alberta), Dr. Curtis Budden (Assistant Professor, University of Alberta) for www.pedscases.com