Cleft Lip and Palate

BACKGROUND

- **Cleft lip and palate (CL/P)** is a subcategory of orofacial clefts (OFC)
- OFCs also include: isolated cleft palate and isolated cleft lip
- Oral facial clefts occur in 1:750 live births
- Cleft lip and palate is more frequent in males (2:1) and the most common configuration is a left unilateral CL/P

EMBRYOLOGY

- Failure of the medial nasal process to contact the maxillary process results in cleft lip [weeks 4-7 of gestation]
- Failure of fusion of the palatine shelves with the primary palate and/or failure of fusion of palatine shelves together with the nasal septum results in cleft palate [weeks 4- 12 of gestation]

ETIOLOGY

Environmental factors associated with an increased risk:

- Maternal smoking
- Maternal corticosteroid use
- Teratogens

Genetic factors:

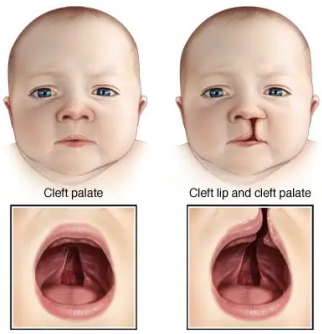
- **Non-syndromic:** Combination of multiple interacting genes and multifactorial inheritance pattern
- **Syndromic:** Cleft lip and/or palate is associated with ~400 genetic syndromes

DIAGNOSIS

- Clefts of the lip and palate are typically recognizable upon newborn exam
- Clefts of the submucous cleft palate may not be identified on newborn examination and may present later in a child having difficulty with feeding, swallowing, chronic ear infections, and/or hyper nasal voice

INVESTIGATIONS

- Second-trimester prenatal ultrasound has an 88% sensitivity for detection of CL±CP
- Prenatal genetic screening
- Newborn physical examination of face, mouth, nose, and palate



Associated Features	PATHOPHYSIOLOGY	MANAGEMENT
Feeding	Clefts of the palate make sucking difficult as they are not able to generate suction and have oronasal communication	• Specialist feeding assessment • Monitoring of weight gain/ growth • Swallowing assessments • Special CL/P bottle/nipple, nasogastric tube placement (rare)
Ear Disorders	Infants with cleft palate are at an increased risk of developing conductive hearing loss, middle ear disease and eustachian tube dysfunction	• Otolaryngologist and audiologist referral • Hearing screen and hearing assessment
Speech	Due to the lack of normal function of the palate, phonetic errors may arise and oronasal communication may lead to hyper nasal speech	• Speech-language pathologist referral • Regular assessment of speech
Oral Health	Children with a CL/P often have missing, extra and/or malformed teeth	• Dentist and orthodontist referral • Regular dental assessment

MANAGEMENT

Surgery is the primary treatment for CL/P

- **Timing: Cleft palate repair:** 9 – 12 months (<12 mo. important to facilitate normal speech development)
- **Cleft lip repair:** 3- 6 months

Goals: Return of normal function and form of lip, nose, and palate

Specialist: Craniofacial surgeon

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