

Dental Clinical Practice 4 Semester 2

The Medically Compromised Child : Part I

Paediatric Dentistry



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Introduction



- The main role of the pediatric dentist is to coordination of management of the child with medical problems
- Prevention of dental disease is important in these children with medical problems
- Simple dental problems may compromise a child's medical management

Congenital Heart Disease



- Congenital cardiac disease represent one of the largest group of medically compromised patients in practice
- Defects are divided into cyanotic or acyanotic lesions

Acyanotic defects



Connection between systemic and pulmonary circulations

- Atrial septal defect
- Ventricular septal defect
- Patent ductus arteriosus: Failure of closure of the duct connecting the pulmonary artery with the aorta

Acyanotic defects with obstruction

- Coarctation of aorta
- Aortic stenosis
- Pulmonary stenosis



Cyanotic defects

Right to left shunting of desaturated blood

- Tetralogy of Fallot: VSD, Pulmonary stenosis, overriding aorta, right ventricular hypertrophy.
- Transposition of great vessels: Aorta exits the heart from the right side whereas the pulmonary artery exits from the left.

Clinical appearance



- Clubbing of fingers
- Cyanosis of mucosa
- Shortness of breath





Dental Management

- Risk of subsequent infective endocarditis (IC)
- Dental treatment done on stable patients after consent from cardiologist

Cardiac conditions where prophylaxis is required



- Prosthetic cardiac valve or prosthetic material used in valve repair
- Previous endocarditis
- Congenital heart disease in the categories below:
 1. Unrepaired cyanotic congenital heart disease includes shunts
 2. Completely repaired defects with prosthetic material or device in the first 6 months
 3. Repaired with residual defects
- Cardiac transplantation recipients with cardiac valvular disease

For what dental procedures endocarditis prophylaxis **need to given?**



All dental procedures that involve manipulation of the gingival tissue or the periapical region of teeth or perforation of the oral mucosa **endocarditis prophylaxis need to given**

Antibiotic prophylaxis is **not recommended** for



the following dental procedure

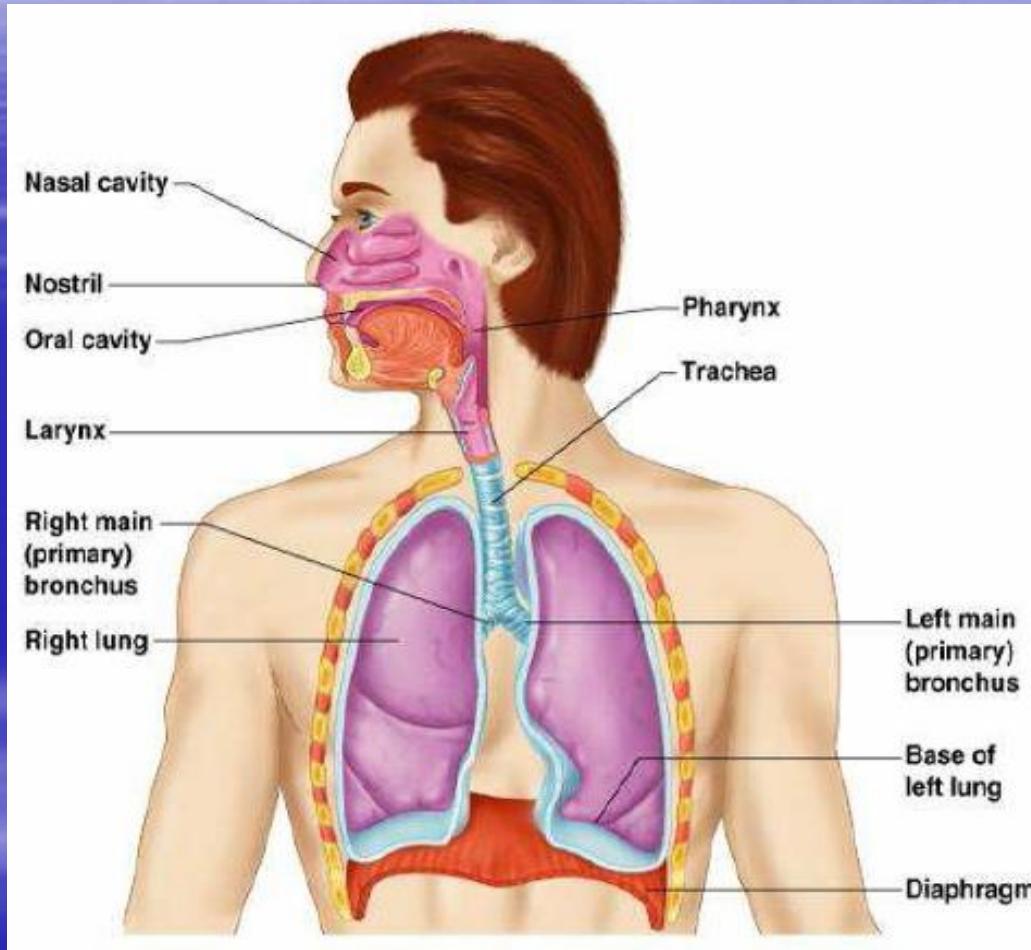
- Routine anesthetic injection through non infected tissues
- Dental radiographs
- Placement of removable prosthodontic or orthodontic appliances, adjustments, ortho bracket placement
- Shedding of deciduous teeth
- Bleeding from trauma to the lip or oral mucosa



Regimens for a dental procedure

SITUATION	AGENT	REGIMENT: Single dose 30 to 60 minutes before
Oral	Amoxicillin	50mg/kg
Unable to take oral	Ampicillin	50mg/Kg IV or IM
Allergic to penicillin	Azithromycin	15mg/kg
Allergic to penicillin and unable to take oral	Clindamycin	20mg/Kg IV or IM

Respiratory Disease



Asthma



The condition characterized by hyper-responsiveness of the airway and bronchial inflammation leading to attacks of wheezing and coughing



Dental implication

- Major risk acute attach in the surgery managed by 2-3 puffs of ventolin
- Check if the child is under steroid medication

Dental management

1. Regular dental prophylaxis
2. No contraindication to the use of N₂O sedation



Cystic fibrosis

- Autosomal recessive disorder of mucus-secreting exocrine glands
- Airway and pancreatic diseases with resulting respiratory illness
- Children are treated with tetracyclines resulting in stain tooth

Dental Management



- Preventive dental care
- Use of general anesthesia must be discussed with respiratory pediatrician
- Long appointments should be avoided

Renal disease



End-stage renal failure leading to a drop in glomerular filtration rate that results in progressive hypertension, fluid retention and build-up of metabolites

Dental implication

- Growth retardation
- Pale and anaemic and Bleeding tendency
- Child on dialysis are under anticoagulants
- Caries rate is low due to ammonia release
- Uraemic stomatitis
- Tooth calcifying during renal failure will exhibit hypoplasia

Liver disease



- Congenital obliteration (e.g biliary atresia)
- Acquired (hepatitis A, B, non-A, non-B)
- Clinical manifestations: jaundice (caused by hyperbilirubinaemia)
- Dental implications:
 - Intrinsic blue-green stain of primary teeth
 - Coagulation disorder (vitamin K-dependent)
 - Liver transplant recipients:
immunocompromised
 - Altered drug metabolism



Endocrinopathies

- Diabetes mellitus
- Pituitary disorders
- Thyroid disorders
- Parathyroid disorders
- Adrenal insufficiency secondary to steroid therapy

Diabetes mellitus



- Type I or insulin dependent is the most common in children
- IDDM develops in children as a result of viral or toxic insults or autoimmune
- Goal of treatment is to maintain blood glucose at a normal level
- Dental implications:
 - Impaired defense against infection: periodontal disease, opportunistic infection, delayed healing
 - Antibiotic prophylaxis are recommended for invasive dental procedures

Dental Management



- Dental appointment in morning after insulin and normal meal, glucose should always be available
- Healing can be delayed, risk of oral sepsis
- Prophylactic antibiotics for invasive dental procedures
- Well-controlled diabetes can receive dental treatment in normal manner
- Children treated under GA dextrose and insulin infusion to avoid complication during fasting.



Pituitary Disorders

Hypopituitarism

- Growth hormone deficiency cause delayed tooth eruption or root formation
- Often associated with anterior open bite

Hyperpituitarism

- Primary hypersecretion of pituitary hormones
- Prognathism
- Accelerated dental development and eruption

Thyroid disorders



Hypothyroidism

- Decreased vertical growth, maxillary protusion and open bite
- Delayed eruption

Hyperthyroidism

- Accelerated growth and development
- Early eruption of teeth

Dental Management

- Hypothyroid patient is at risk of development of cardiac failure when treated under GA
- Oral infection seem to have an injurious effect on the thyroid gland and may aggravate hyperthyroisism



Parathyroid disorders

Hyperparathyroidism

- Excessive production of parathyroid hormone
- Primary disease results in hypercalcaemia, muscle weakness, GIT disturbances, osseous malformation and pain
- Increased tooth mobility without pocketing

Hypoparathyroidism

- Structural and functional deficiencies
- As a result of irradiation, neoplasm, autoimmune disease
- Treatment is to maintain serum calcium levels
- Hypoparathyroidism symptoms include hypocalcaemia, neuromuscular excitability and tetany.
- Circumoral paraesthesia, spasm of facial muscles
- Enamel hypoplasia, root anomalies
- Delayed eruption



Adrenal Insufficiency

- Usually a result of chronic steroid therapy (primary causes: Cushing's syndrome, Addison's disease)
- Steroids prescribed for rheumatological disorders, acute leukemia and post-transplant medication
- Infection or stress may precipitate an adrenal crisis: steroid cover should be considered