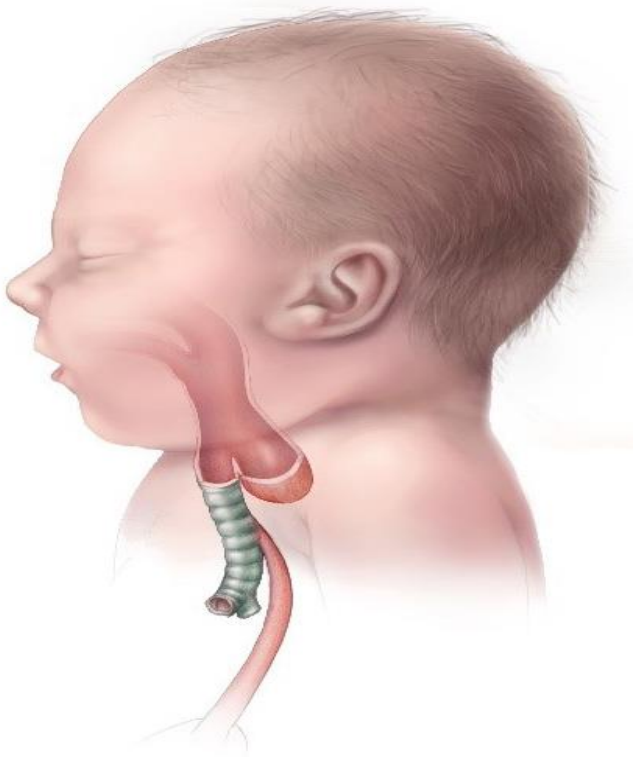
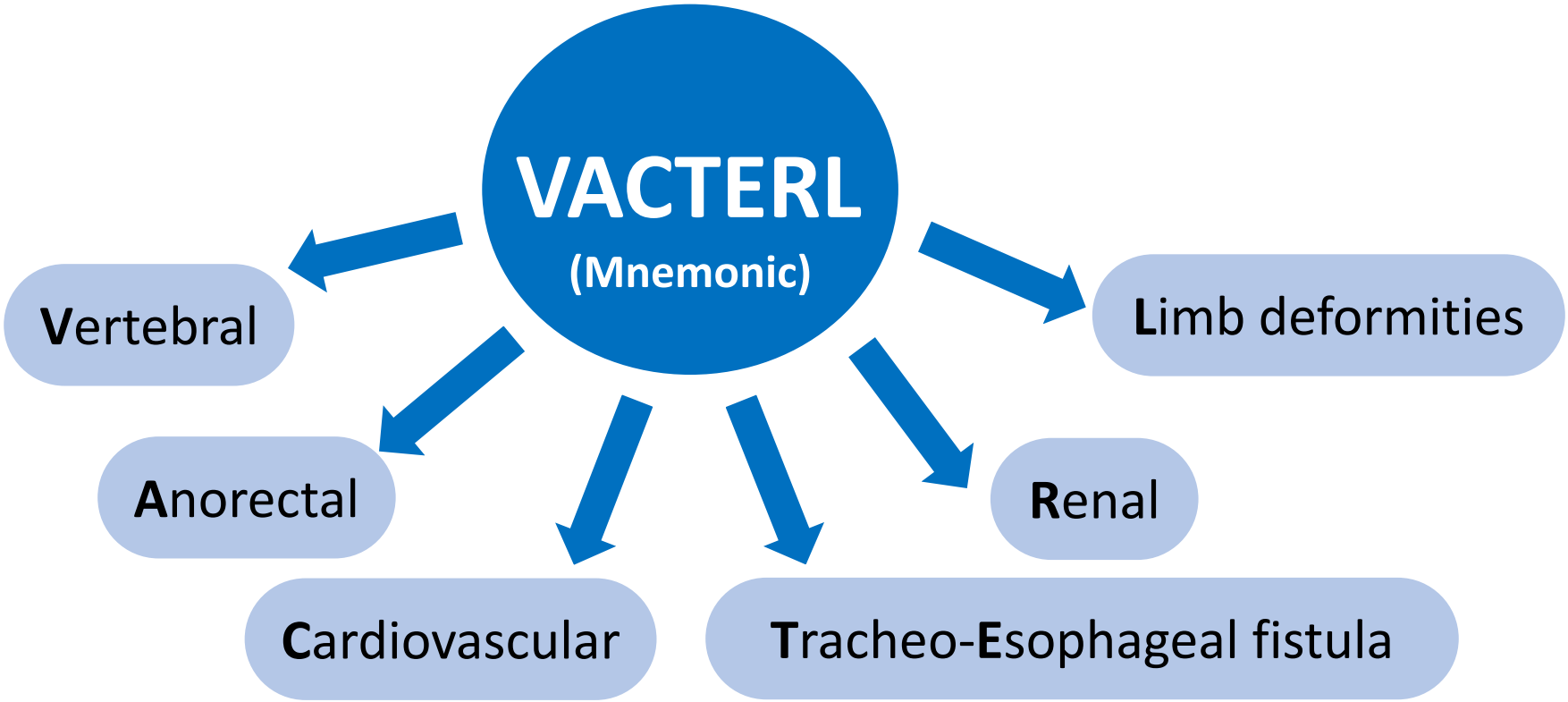
Oesophageal Atresia



Oesophageal Atresia

- Condition in which the proximal and distal portions of the esophagus do not communicate.
- Upper segment -Dilated blind-ending pouch with a hypertrophied muscular wall
- Lower segment -Atretic pouch with a small diameter and a thin muscular wall
- It may associate with trachea-oesophageal fistula

Associations



Pathophysiology

- The esophagus and trachea both are derivations of the primitive foregut
- Lateral mesodermal ridges form in the proximal esophagus during the fourth week of gestation
- Fusion of these grooves in the midline separates the esophagus from the trachea at approximately 26 days' gestation
- The esophageal lumen forms following a process of mucosal proliferation and subsequent vacuole formation
- Esophageal anomalies result from failure of these processes

Numerous theories

- Asymmetric growth of the esophageal mesenchyme and the epithelial lining
- An increased cell proliferation rate in the trachea
- A lack of tracheoesophageal separation
- A notochord abnormalities
- Delayed or absent apoptosis
- Neural crest abnormalities

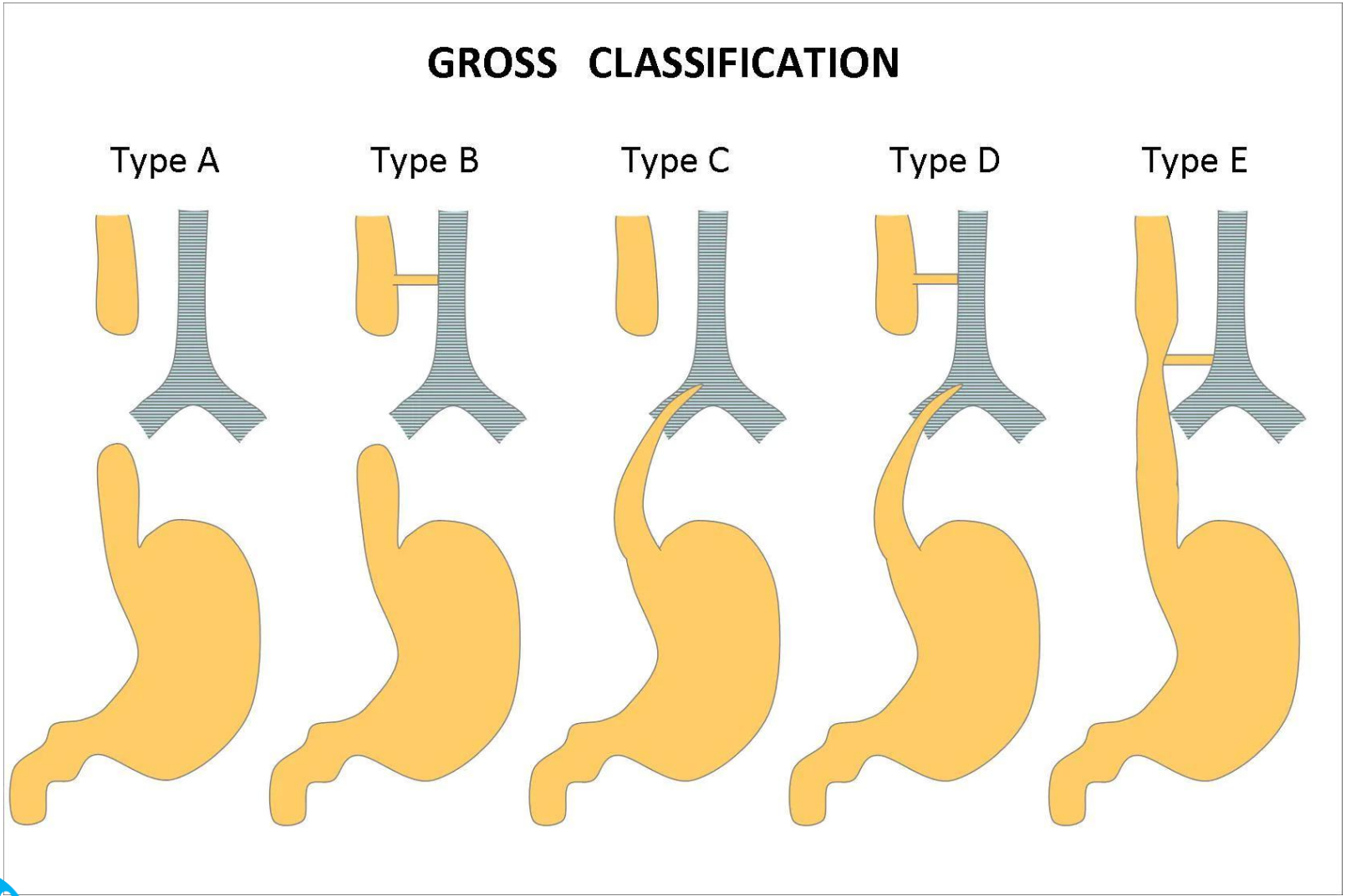
Contributory factors

- Genetic factors
- Vitamin deficiencies
- Drug and alcohol exposures
- Viral, chemical, and external physical events
- First-trimester use of benzodiazepines

Types

- **Type A** - Esophageal atresia without fistula or so-called pure esophageal atresia (10%)
- **Type B** - Esophageal atresia with proximal TEF (< 1%)
- **Type C** - Esophageal atresia with distal TEF (85%)
- **Type D** - Esophageal atresia with proximal and distal TEFs (< 1%)
- **Type E** - TEF without esophageal atresia or so-called H-type fistula (4%)
- **Type F** - Congenital esophageal stenosis (< 1%)

Types



Clinical features

- Maternal polyhydramnios- In antenatal period
- Frothy saliva
- Cyanotic episodes
- Respiratory distress

Complications

- Polyhydroamnios
- Premature labor
- Small for their gestational age.

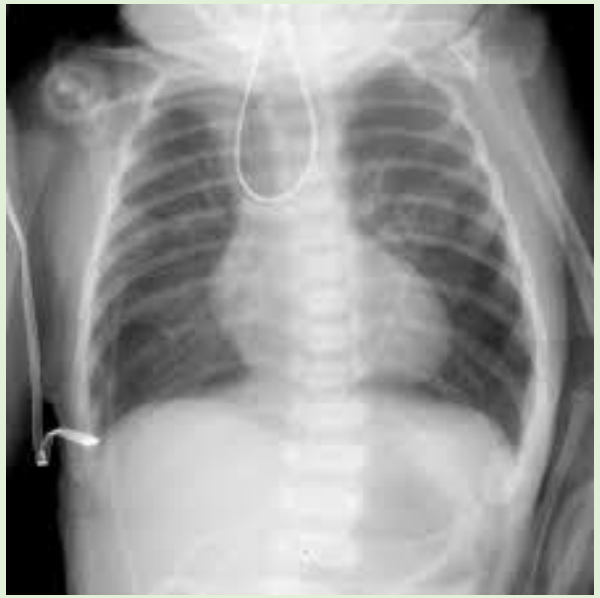
- Aspiration pneumonia
- Tracheomalasia
- Acute gastric perforation

Antenatal investigations

- Alpha-fetoprotein (AFP) level - Increased
- Acetylcholinesterase test - Positive
- Chromosomal analysis
- Ultrasonography

Diagnosis

- Confirmed by nasogastric tube goes no further than the upper oesophageal pouch on the chest x-ray
- Chest X-ray- NG tube in the upper pouch
- Abdominal X-ray- Intestinal gas if associated with tracheo-oesophageal fistula
- Ultrasonography
- MRI
- Contrast studies



Management

- Keep nil by mouth
- IV fluids
- Prophylactic broad spectrum antibiotics
- Warm the child
- Continues suction
- Surgical repair
- If severe tracheomalasia- tracheostomy

Management

Surgical repair- within 2 days after birth when associate with Tracheo-oesophageal fistula

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Right-sided extrapleural thoracotomy

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The fistula is divided and the tracheal side is closed

Then the esophageal ends will be anastomosed.

Preparation for surgery

- Intravenous(IV) fluid containing an adequate glucose concentration
- Prophylactic broad-spectrum IV antibiotics
- The neonate is kept warm
- A 10-French Replogle tube is placed nasally or orally well into the upper pouch- continuous suction

Postoperative care

- Neonatal intensive care unit (NICU) (management setting)
- Antibiotics are continued until the chest drain is removed
- Endotracheal tube is suctioned as necessary
- Endotracheal tube should remain until weaning from ventilation is ensured
- Chest draining tube is placed in 2 cm of water only to seal it
- Orally fed- starting with expressed breast milk
- Oral ranitidine or a proton pump inhibitor

Postoperative complications

- Anastomotic leak
- Stricture
- Recurrent fistula formation
- Gastro-oesophageal reflux

Pure esophageal atresia without tracheo-oesophageal fistula

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Temporary gastrostomy

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Delayed primary repair or an esophageal replacement

Prognosis

- Patients with severe congenital anomalies - survival rates 95%
- In uncomplicated cases- survival rates 100%.
- Prognosis for children with trachea-oesophageal depend on,
- Birth weight
- Presence of pneumonia
- Associated congenital anomalies