Tongue Development
The tongue developed from 4 embryonic processes arises from the first three brachial arches & with small contribution of the 4th arch.
two lateral lingual processes arises from the lateral sides of the 1st arch with one process from the middle called tuberculum impar, so it cover by ectodermal origin epithelium.
the posterior one third of the tongue developed from one process called hypobranchial eminence or copula which extend from the 2nd & 3rd arch with small contribution of 4th arch, so the posterior one third of the tongue covered by endodermal originated epithelium.
the anterior 2/3 & posterior 1/3 of the tongue joint at the foramen cecum.
Developmental facial abnormalities
Causes:
1. hereditary factors (genetic)
2. congenital factor (environmental)
There are different cases of facial abnormalities such as:

1. cleft lip:
   a. unilateral: due to failure in fusion between medial nasal process & the maxillary process in one side of the face.
   b. Bilateral: failure in fusion in both sides

2. cleft palate:
   a. anteriorly: failure in fusion between primary & secondary palate.
   b. Posteriorly: failure in fusion between the two palatal shelves of maxillary process, so it involve the uvula also.
3. **oblique facial cleft**: failure in fusion between the lateral nasal process & the maxillary process.

4. **lateral facial cleft**: failure the fusion of maxillary with the mandibular processes so this lead to condition called macrostomia
5. Treacher collins' syndrome (mandibulofacial dysostosis):

it's hereditary disorder, it characterize by underdevelopment of the tissue derived from maxillary, mandibular, & hyoid prominences. The external & middle ear are also defected & the cleft of secondary palate may be found.
6. **labial pit's**: small pits may be persist on either sides of midline of lower lip.
7. lingual anomalies:

a. **median rhomboid glossitis**: smooth red rhomboidal zone of the tongue in front of foramen cecum due to persistence of tuberculum impar

b. **bifid tongue**: due to failure in the fusion of the 2 lateral lingual prominences.

c. **Thyroid gland** may be persist at the base of the tongue.

d. **Part of the thyroglossal duct** may persist at the base of the tongue & lead to cyst formation.
Developmental cysts:

They originated from epithelial rests in the line of union of facial or oral prominences, or from epithelial organs, such as:
1. branchial cleft (cervical cysts)
   may arises from the rest of epithelium in the visceral arch area, they are usually laterally disposed on the neck.

2. thyroglossal duct cyst
   may occur at any place along the course of the duct usually at or near the mid line.

3. globulomaxillary cysts:
   these cysts arise from epithelial rests after the fusion of medial, maxillary & lateral nasal prominences, they may developed as primordial cysts from primordial cysts from supernumerary tooth germ
4. anterior palatine cyst:
are situated in the mid line of maxillary alveolar prominence & they believed to be from remnants of the fusion between two prominences, they may be primordial cyst of odontogenic origin.

5. nasolabial cysts: originated in the base of the wing of the nose & bulging in to the nasal & oral vestibule & the root of the upper lip. They may developed at the line of cleft or due to excessive epithelial proliferation.