

Reading Hospital School of Health Sciences  
Medical Imaging Program  
Clinical Seminar IV

## C-spine and Soft Tissue Neck Anatomy

Merrill's Vol. 1,  
Chapter 8 pg. 364  
Chapter 10 pg. 492

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C1 Vertebra (Atlas)  
and  
C2 Vertebra (Axis)

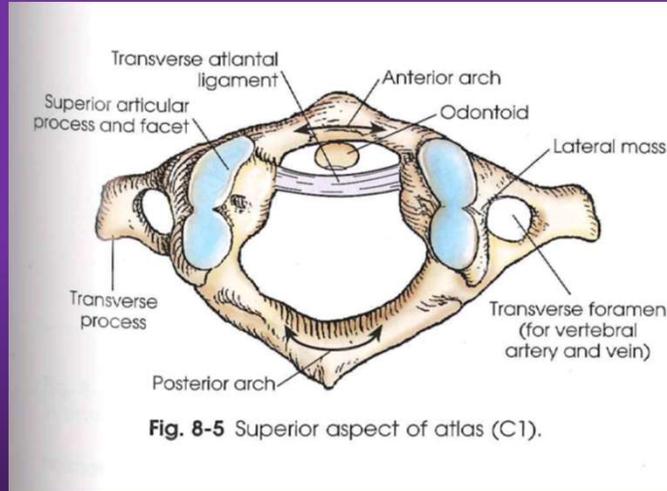
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### Cervical Vertebrae

- 7 vertebrae supporting the skull
- Protects spinal cord & blood flow to the brain
- Concave (lordotic) curvature
- 3 unique vertebrae = atlas and axis, and C7

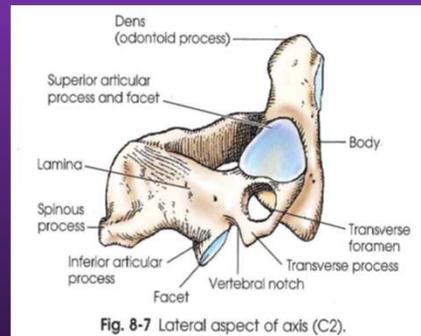
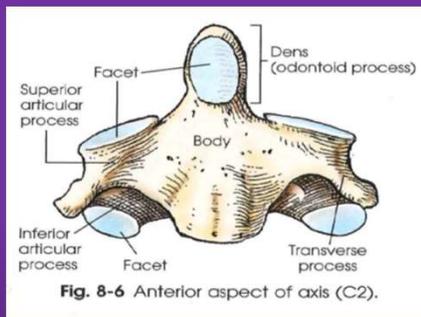
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## Atlas - C1



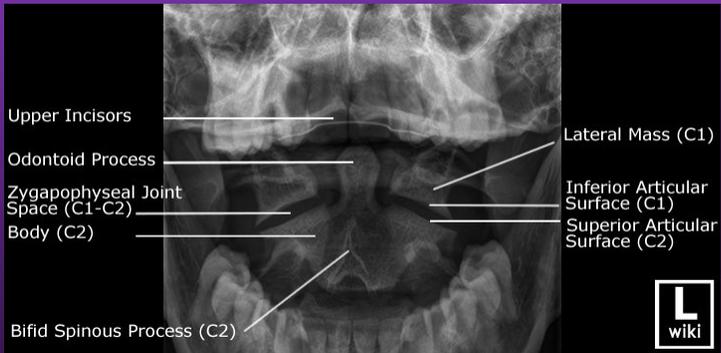
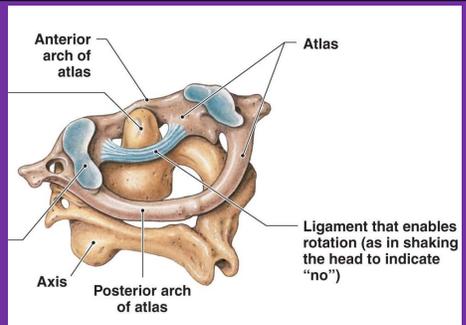
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## Axis - C2



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# Atlas and Axis Articulations



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# Typical cervical vertebrae C3-C6

- Unique characteristics
- Bifid spinous process
  - Articular Pillars (instead of lateral masses)
  - Three foramina

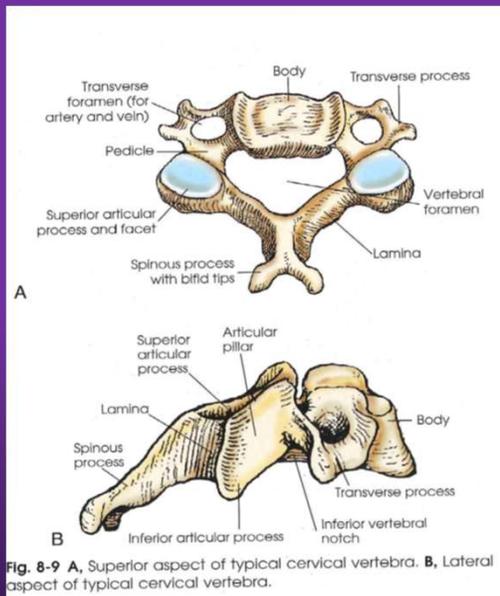
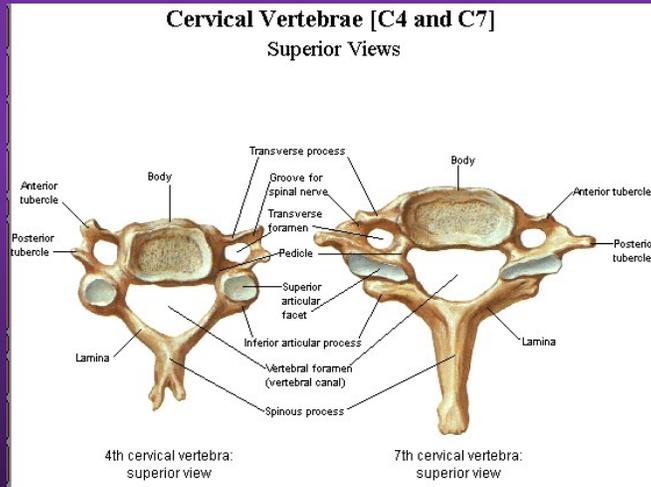


Fig. 8-9 A, Superior aspect of typical cervical vertebra. B, Lateral aspect of typical cervical vertebra.

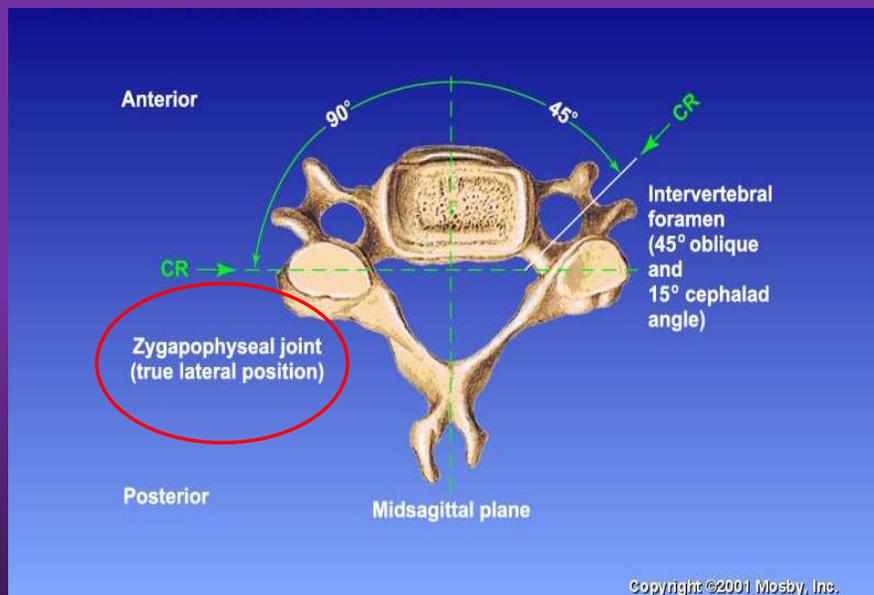
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# Vertebra Prominens- C7



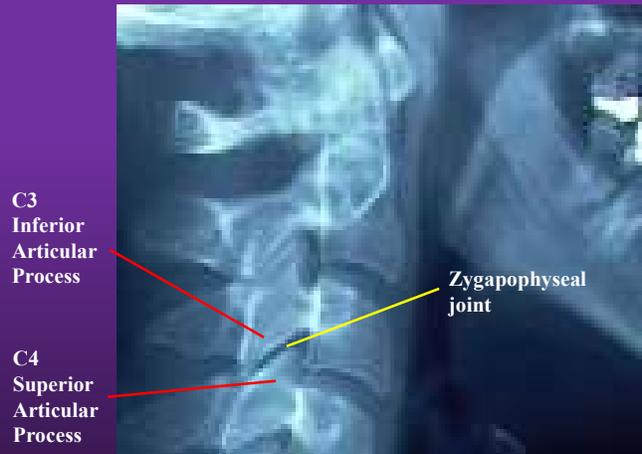
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## Zygapophyseal Facet Joints



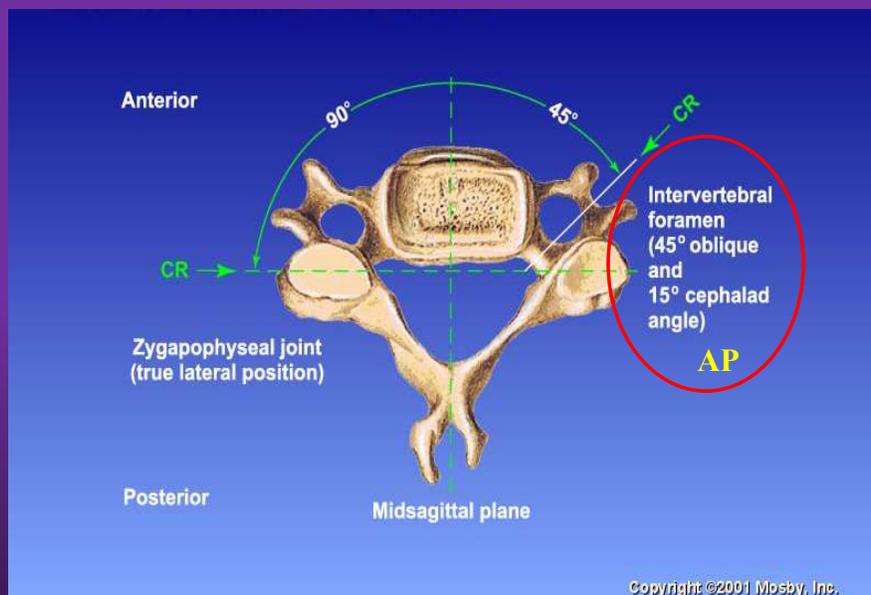
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Zygapophyseal joints are formed between **inferior articular processes** of one vertebra with the **superior articular process** of the one below it

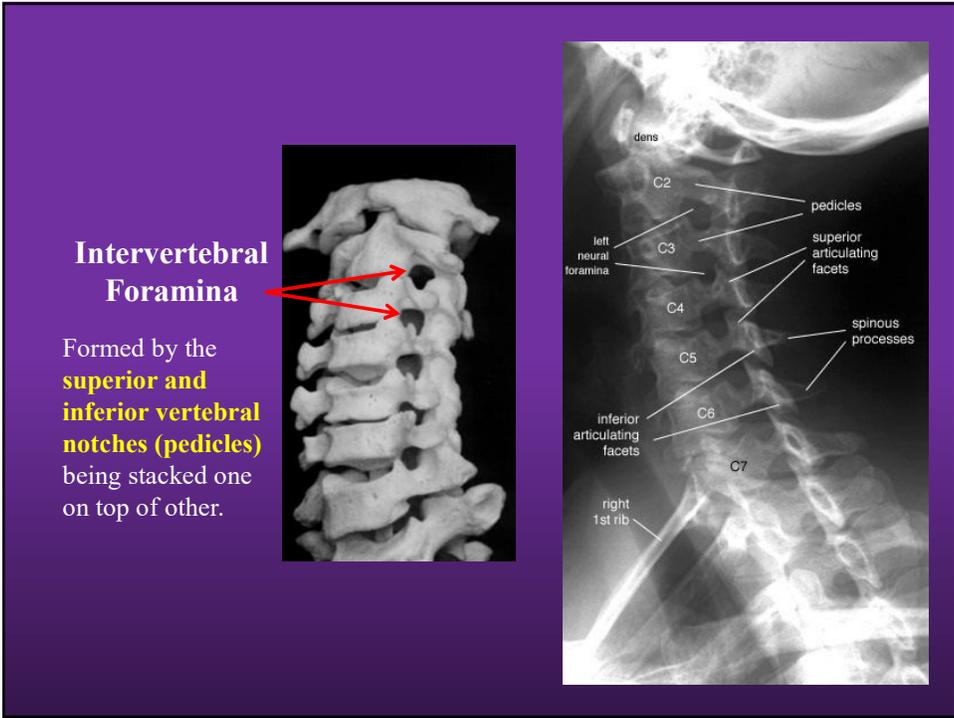


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## Intervertebral Foramina



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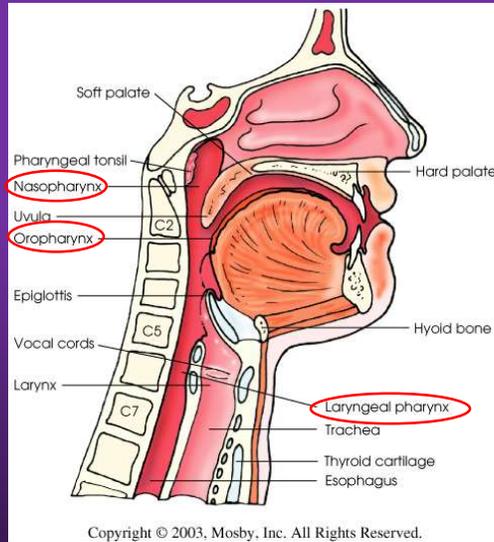


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CHARACTERISTIC	CERVICAL	THORACIC	LUMBAR
Overall structure			
Size	Small.	Larger.	Largest.
Foramina	One vertebral and two transverse.	One vertebral.	One vertebral.
Spinous processes	Slender, often bifid (C2–C6).	Long, fairly thick (most project inferiorly).	Short, blunt (project posteriorly rather than inferiorly).
Transverse processes	Small.	Fairly large.	Large and blunt.
Articular facets for ribs	Absent.	Present.	Absent.
Direction of articular facets			
Superior	Posterosuperior.	Posterolateral.	Medial.
Inferior	Anteroinferior.	Anteromedial.	Lateral.
Size of intervertebral discs	Thick relative to size of vertebral bodies.	Thin relative to size of vertebral bodies.	Thickest.

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## Soft Tissue Neck



**Pharynx** - Divided into 3 separate sections: part of 2 organ systems (GI and Respiratory)

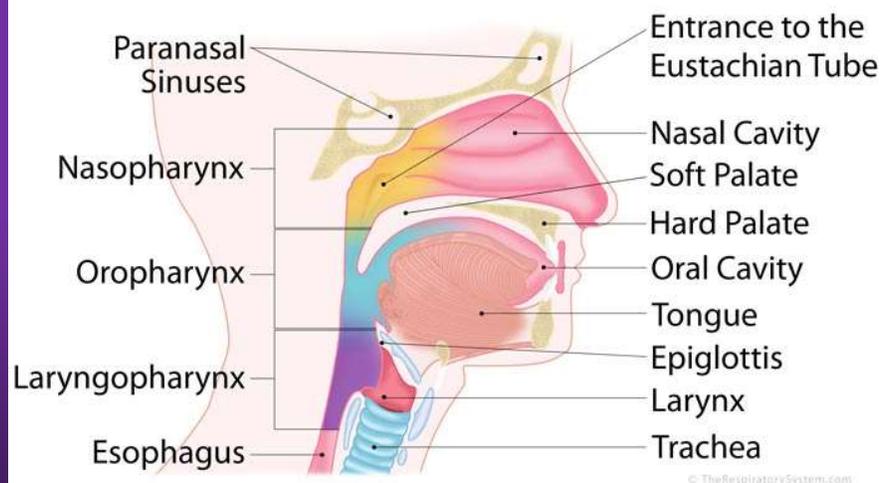
**Nasopharynx** – behind the nasal passage

**Oropharynx** - back of oral cavity

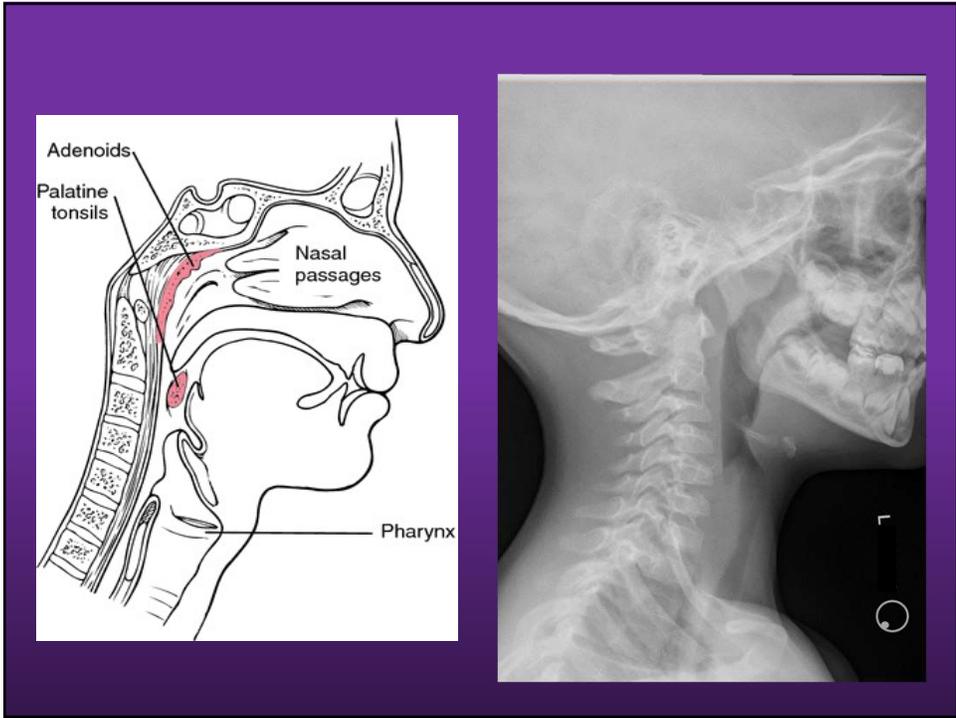
**Laryngopharynx** - Most distal part of pharynx ('throat')

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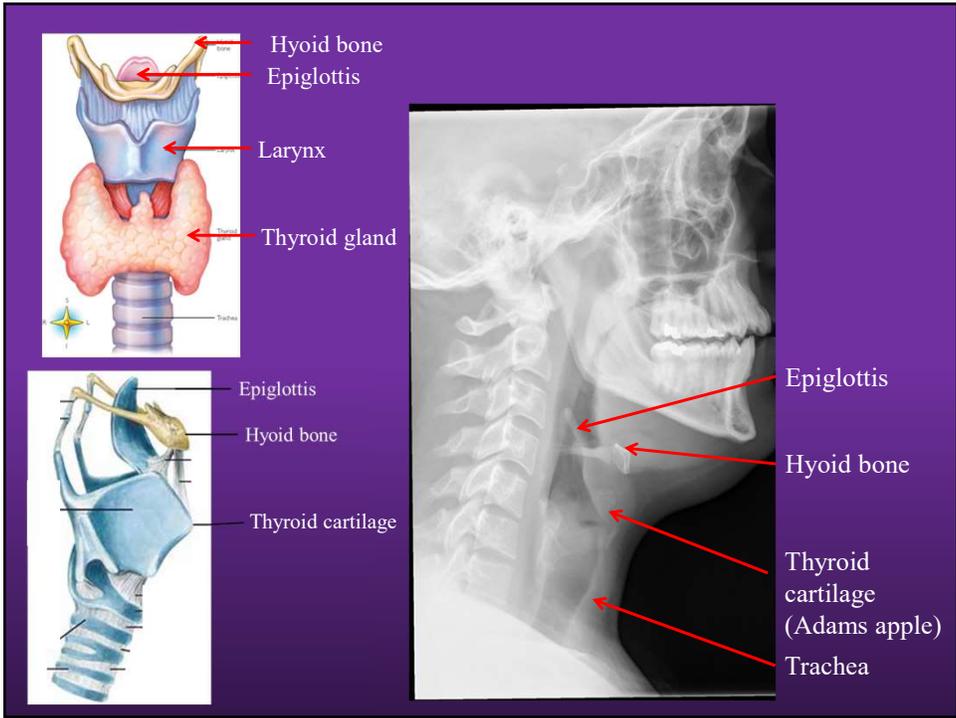
## Anatomy of the Pharynx



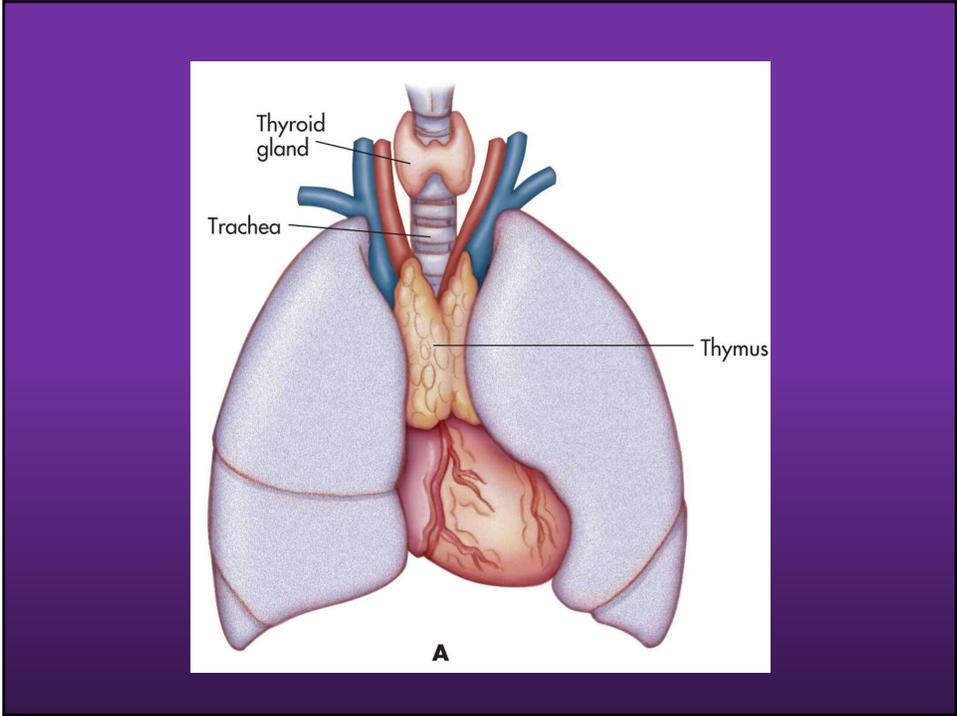
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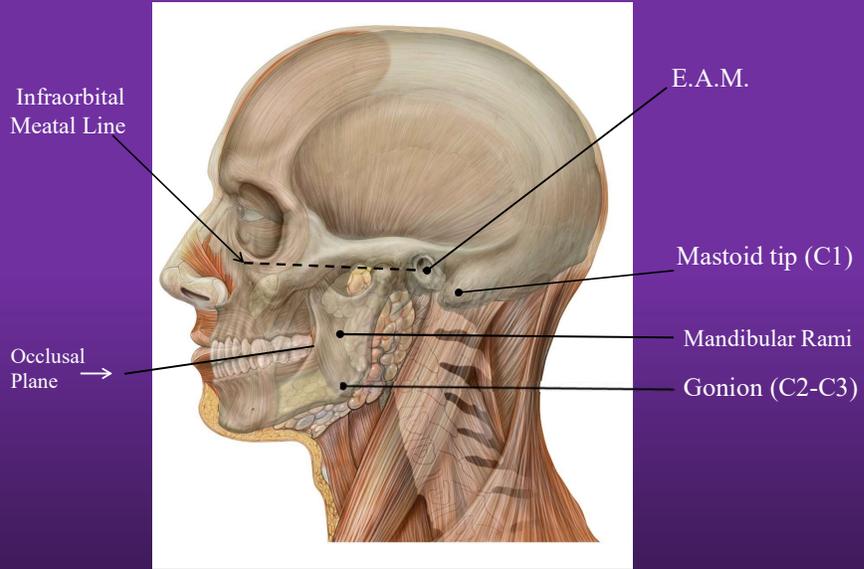
- A. Larynx and trachea
- B. Region of esophagus
- C. Region of thyroid gland
- D. Region of thymus gland

A lateral chest X-ray showing the thoracic cavity. Four green arrows point to specific regions: A points to the larynx and trachea, B points to the esophagus, C points to the thyroid gland, and D points to the thymus gland. The X-ray shows the spine, ribs, and lung fields.

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# Positioning Landmarks



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**C7**



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## Critiquing Landmarks

C7 spinous process is known as the vertebral prominens and can be palpated between the shoulders at base of neck



C2 appears taller than other cervical vertebra, due to the dens. Its spinous process appears rounder and thicker.