

وسهلا

أهلا



الأستاذ الدكتور / يوسف حسين

أستاذ التشريح وعلم الأجنة

كلية الطب – جامعة الزقازيق- مصر

دكتورة من جامعة كولونيا المانيا

جروب الفيس

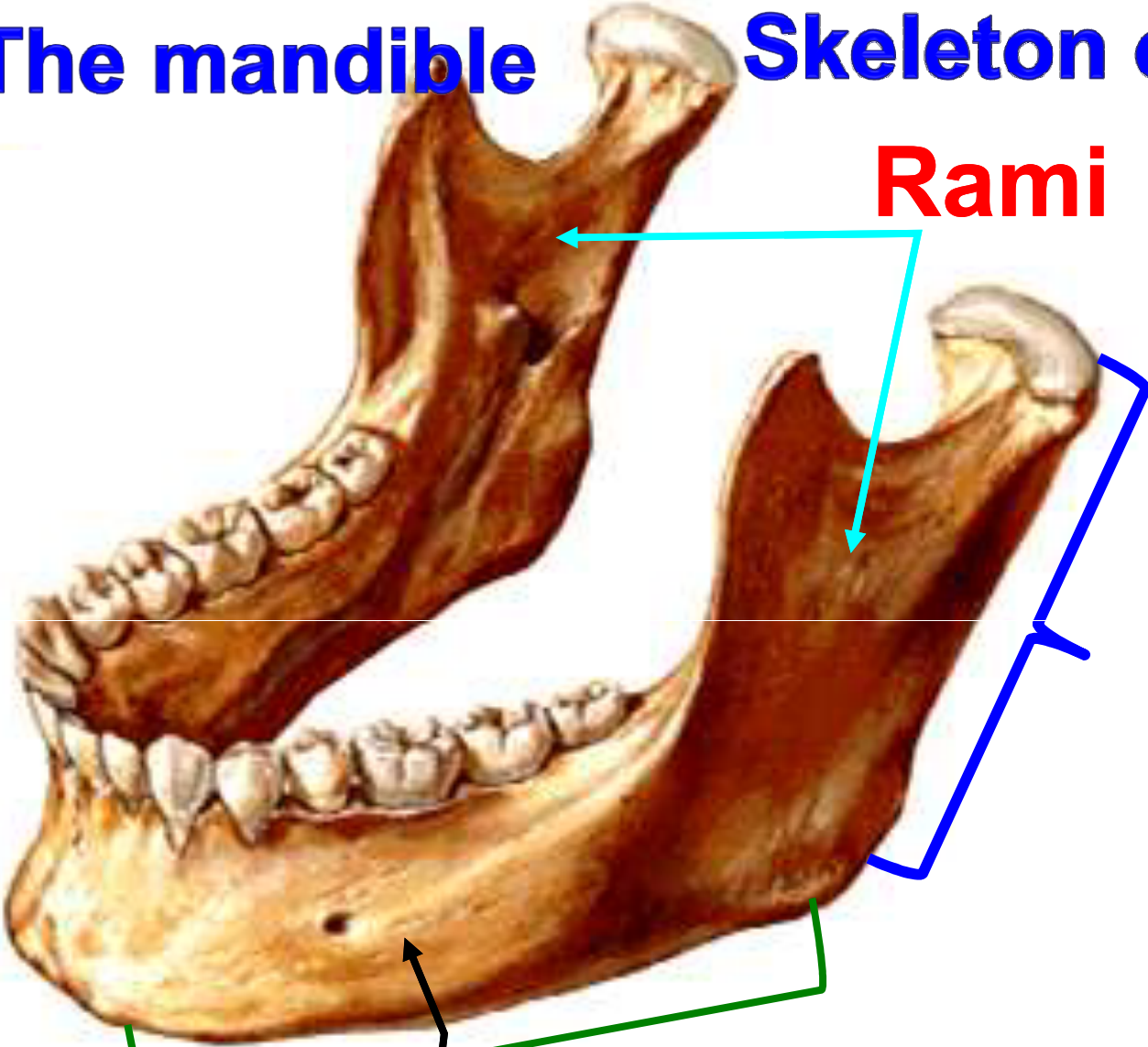
د. يوسف حسين (استاذ التشريح)



Mandible

The mandible

Skeleton of lower jaw



Rami

Body

Horse-shoe shaped body

External surface of body of mandible

Has 2 borders
and 2 surfaces

Horse-shoe
shaped body

Symphysis
menti

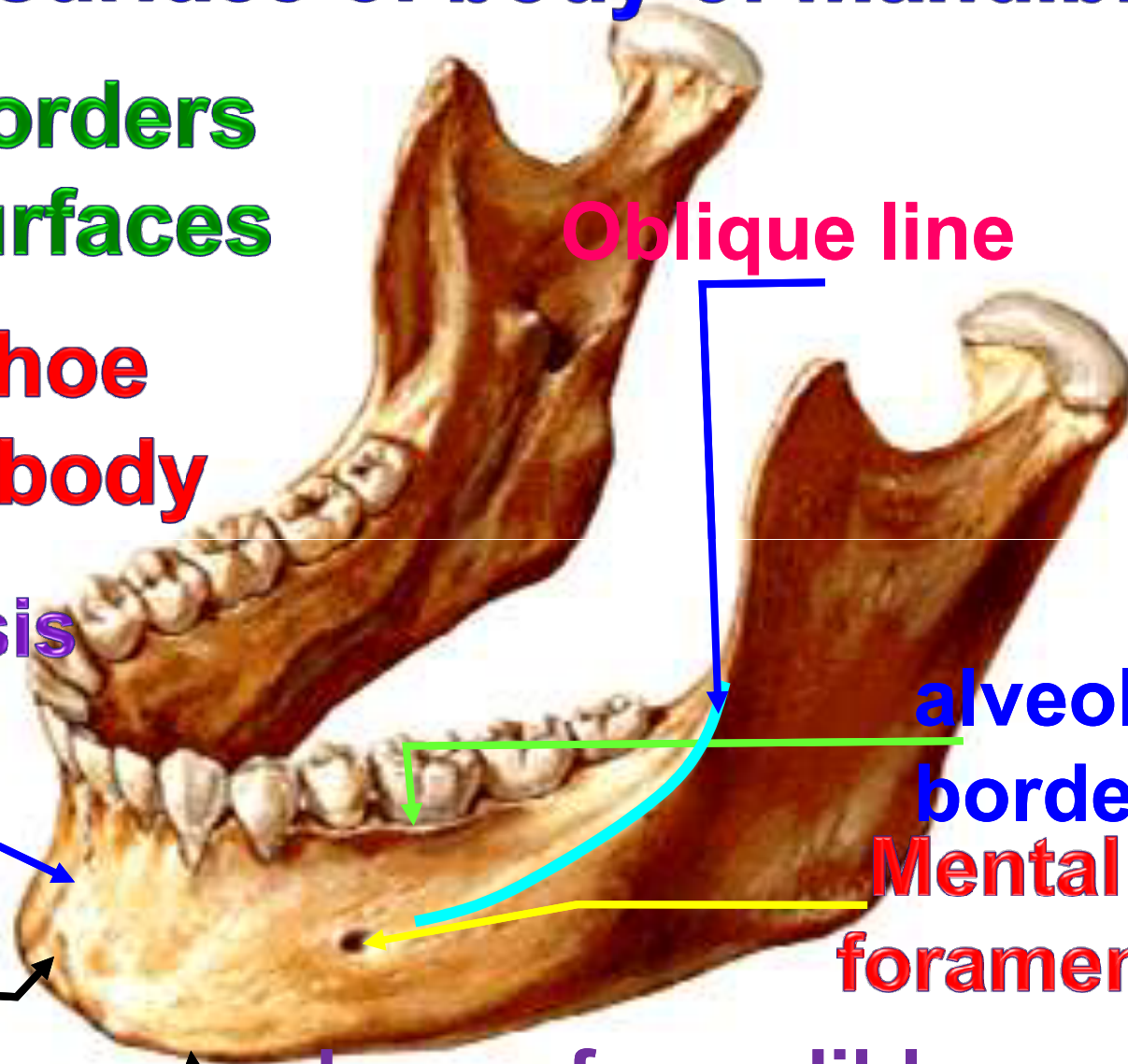
Oblique line

alveolar
border

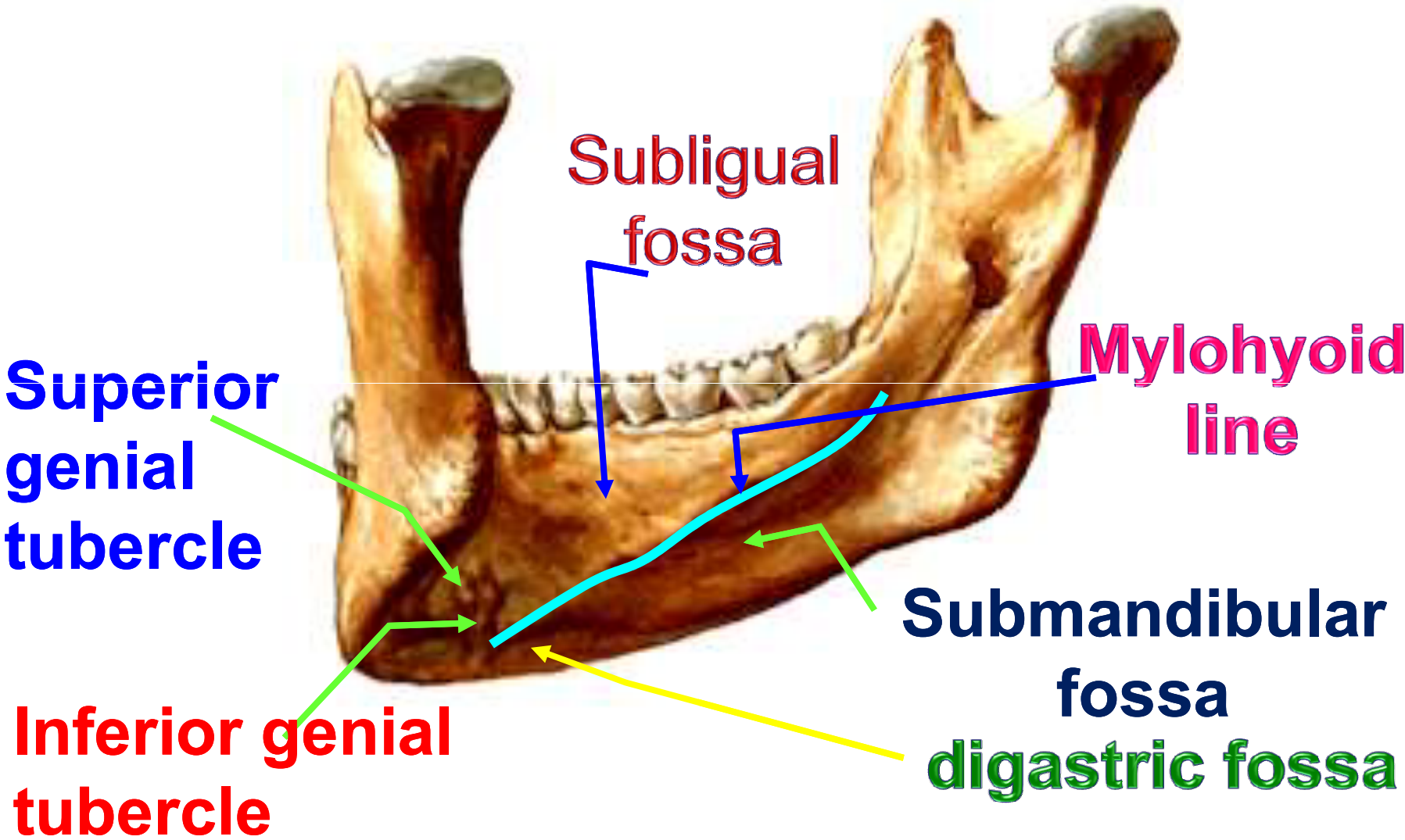
Mental
foramen

mental
protuberance

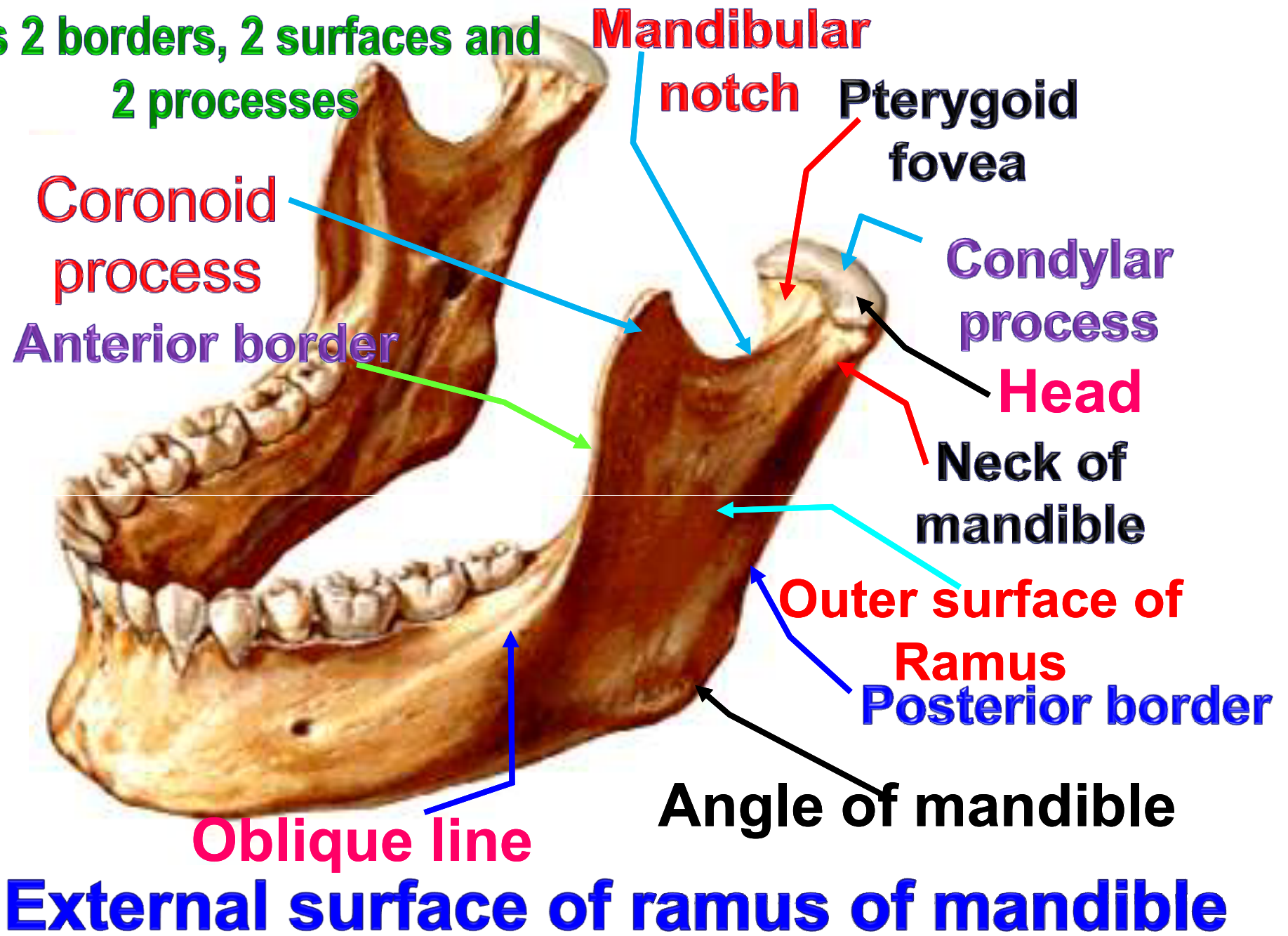
base of mandible

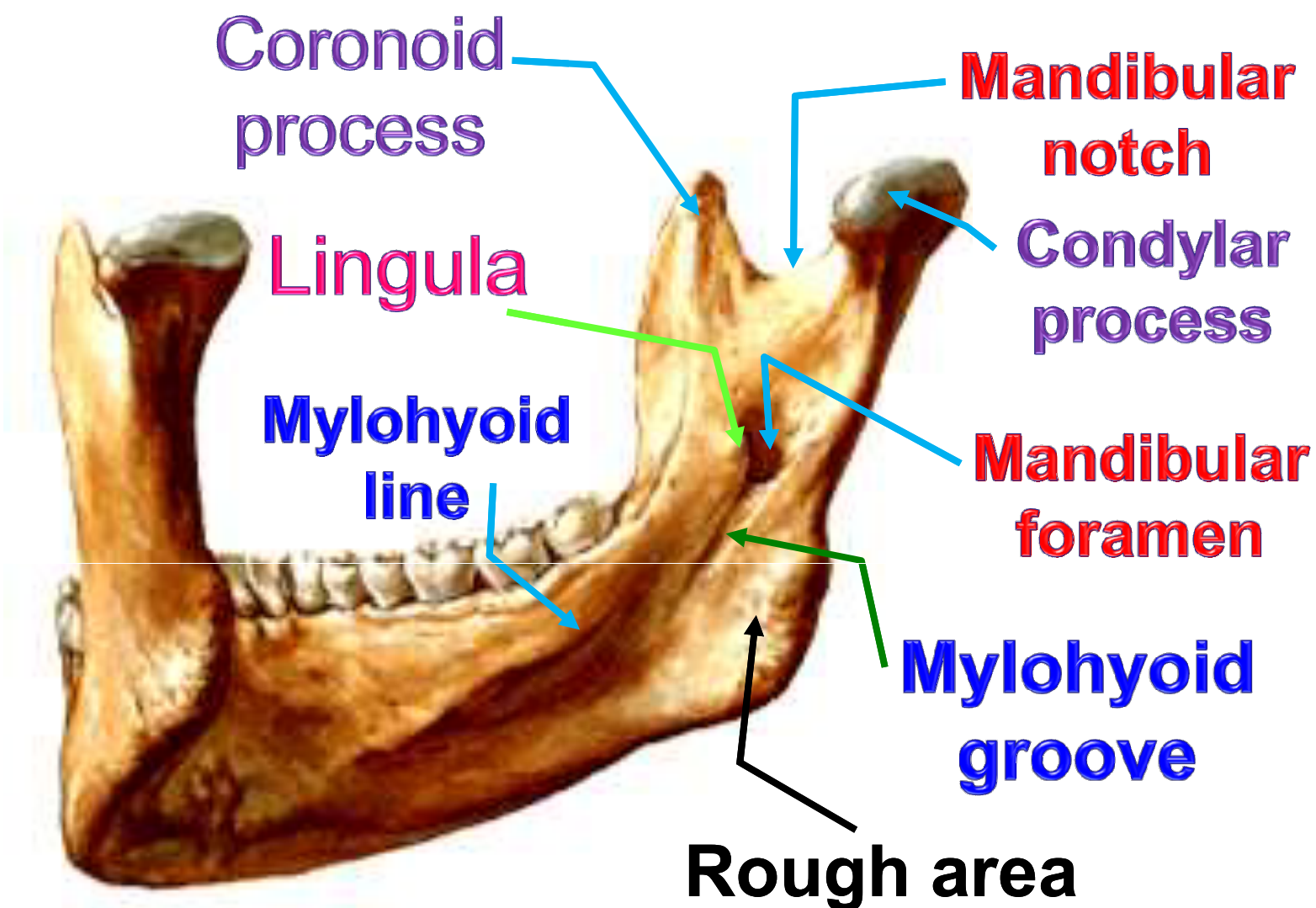


Internal surface of body of mandible

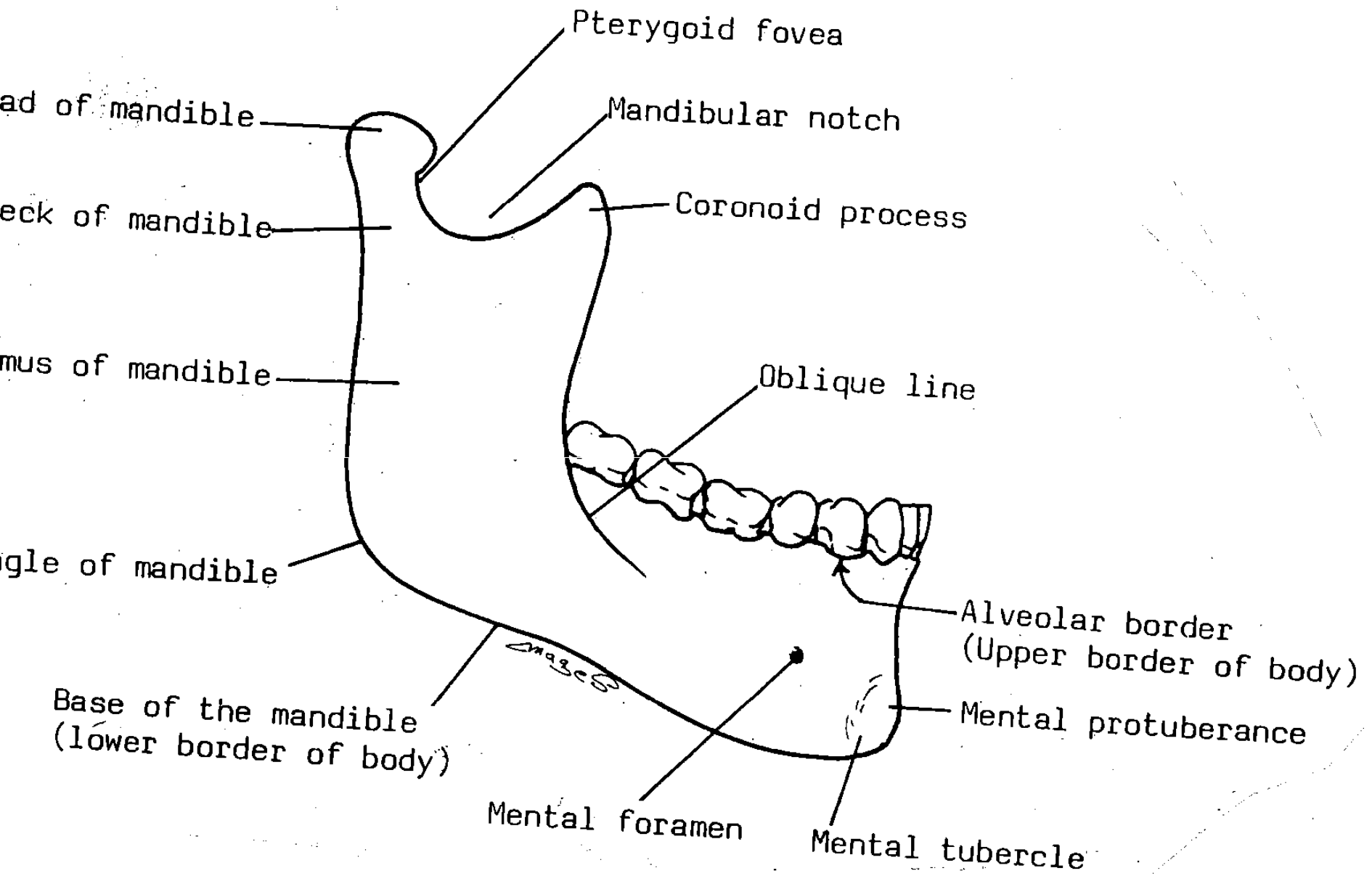


Has 2 borders, 2 surfaces and 2 processes

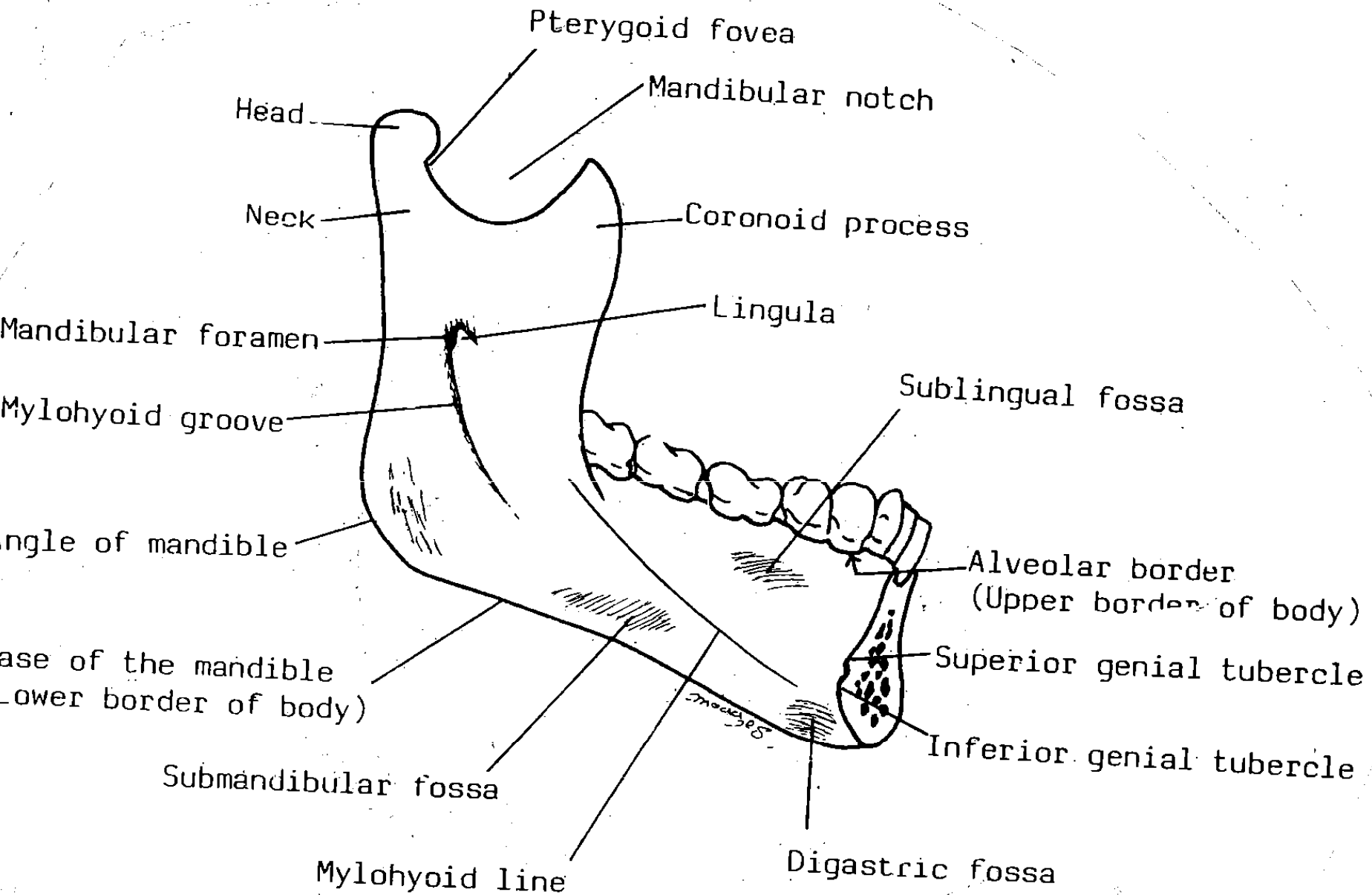




Internal surface of ramus of mandible



Mandible - Lateral aspect.



Mandible - Medial aspect.

- **Body of the mandible**

horse-shoe shaped haversing;

borders (upper and lower)

surfaces (inner and outer)

Upper border (alveolar margin), carries the sockets for the teeth.

Lower border shows **digastric fossa** close to the symphysis menti on each side.

Outer surface; shows the following features.

Symphysis menti **الالتصاق**; a faint median ridge.

Mental protuberance **ذقني**; a median elevation in front of body close to lower border.

Mental tubercle, a projection on each side of the mental protuberance.

Mental foramen **ذقني**; on the outer surface transmits the mental nerve and vessels.

Oblique line; from the anterior border of the ramus to the mental foramen.

Inner surface.

Superior and inferior genial tubercles **ذقني**; close to the middle line.

Mylohyoid line, an oblique line on the inner surface of the body.

Submandibular fossa, below the mylohyoid line to **submandibular gland**.

Sublingual fossa, above the mylohyoid line to **sublingual gland**.

Ramus of the mandible,

er concave border, Mandibular **notch**.

er border, it continuous with the base of the mandible.

le of the mandible is the meeting of the posterior and inferior borders.

er surface, shows the following features,

mandibular foramen in the center of the ramus → **mandibular canal** and transm
rior alveolar nerve and vessels.

gula, a small tongue like process medial to the mandibular foramen.

mylohyoid groove; starts below the mandibular foramen and passes downward
wards to end below the posterior end of the mylohyoid line.

- It lodges the **mylohyoid nerve and vessels**.

cesses,

onoid process, a sharp projection in front of the mandibular notch.

dyalar process, the projection behind the mandibular notch. It constitutes of
d of the mandible to form temporo-mandibular joint.

k of the mandible, a constriction below the head. **Pterygoid fovea**, a small depr
t of the neck.

**** Muscles attached to the mandible**

A- The ramus, receives the insertion of the 4 muscles of mastication;

Masseter muscle, into the outer surface of the ramus.

Temporalis, into the tip and anterior border and medial surface of the coronoid process.

Lateral pterygoid muscle, into the pterygoid fovea.

Medial pterygoid muscle, into the inner surface of the angle.

B- The body (1 insertion and 6 origins);

Masseter muscle, inserted into the base of the mandible.

Masseter muscle from the oblique line.

Anterior belly of digastric muscle from the digastric fossa.

Mylohyoid muscle from the mylohyoid line.

Mylohyoid muscle from the inferior genial tubercle.

Digastric muscle from the superior genial tubercle.

Anterior constrictor muscle of the pharynx from the posterior end of the mylohyoid line.

**** Ligaments attached to the mandible**

Temporomandibular ligament extends from articular eminence of the skull to lateral aspect of the condyle.

Stylohyoid ligament; extends from the styloid process to the **angle**.

Sphenomandibular ligament; from the spine of the sphenoid to the **lingula**.

Pterygomandibular ligament; from pterygoid Hamulus to **posterior end of mylohyoid line**.

**** Nerves related to the mandible**

Nerves related to the foramina;

Anterior alveolar nerve enters the mandibular foramen.

Mental nerve emerges from the mental foramen.

Nerves related to the grooves,

Nerve to mylohyoid, in the mylohyoid groove.

Inferior alveolar nerve runs forwards along groove on the medial aspect of the last molar tooth.

**** Arteries related to the mandible**

Anterior alveolar artery: passes through the mandibular foramen and canal

Mental artery: comes out of the mental foramen.

Mylohyoid artery runs in the mylohyoid groove.

Inferior alveolar artery, curves around the lower border of the mandible at the antero-inferior angle of the masseter muscle.

**** Glands related to mandible,**

Submandibular salivary gland, related to the submandibular fossa.

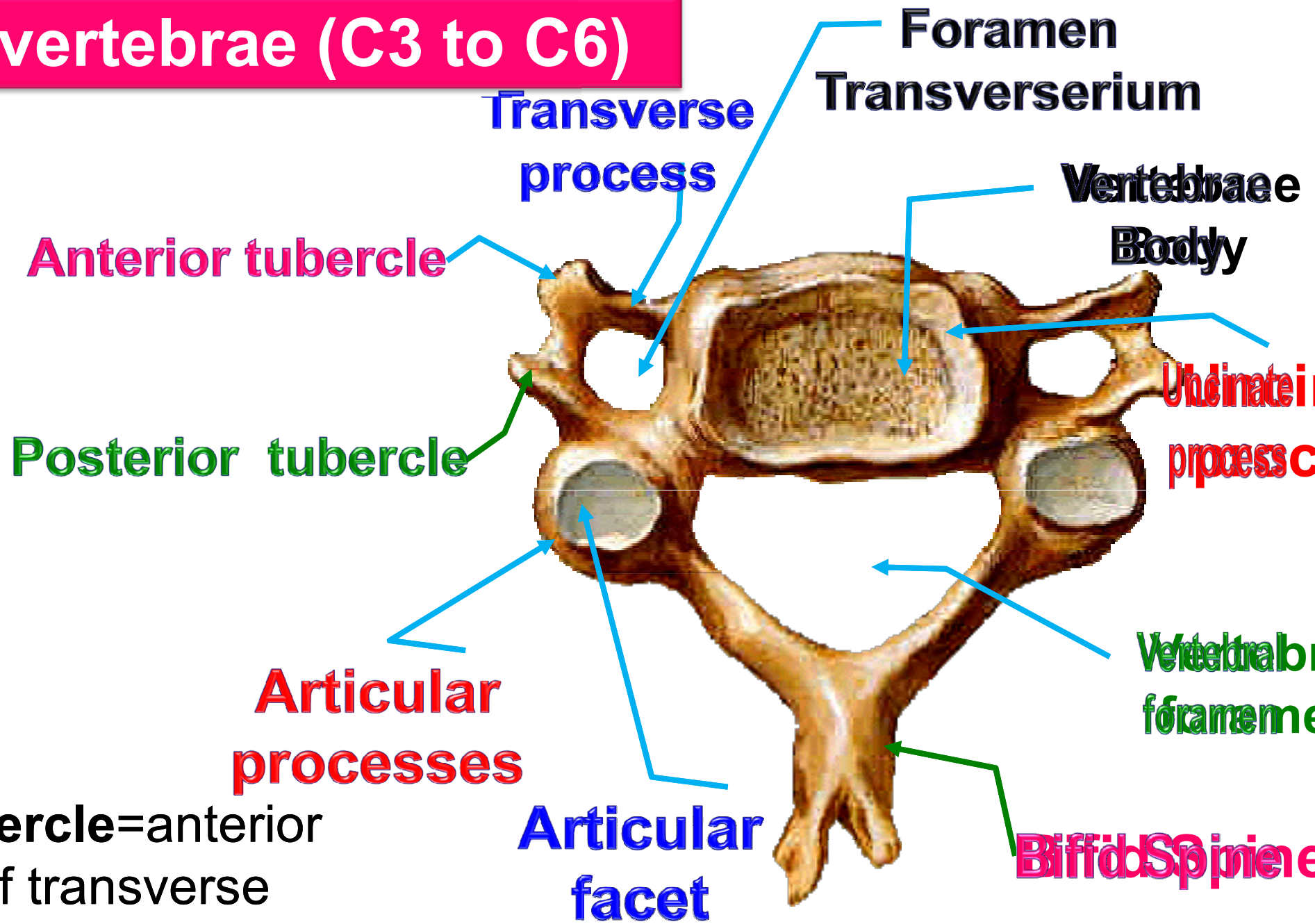
Sublingual salivary gland, related to the sublingual fossa.

Parotid gland related to the posterior border of the ramus.

A large, vibrant red starburst graphic with multiple sharp points, centered on a white background. The text is overlaid on the starburst.

Cervical Vertebrae

Typical vertebrae (C3 to C6)



Anterior tubercle = anterior tubercle of transverse process of C6

- **Cervical Vertebrae**

are characterized by the presence of **foramen transversarium** in the transverse process.

are classified into

typical vertebrae, these are 3, 4, 5, 6.

atypical vertebrae, these are 1 (atlas), 2 (axis) and 7.

- **Typical Cervical Vertebra**

The **spinous process** is short and **bifid**.

Articular features,

The upper surface of the body is concave from side to side with bilateral lips (uncinate processes).

The vertebral bodies give attachment **anteriorly** to the anterior longitudinal ligament and **posteriorly** to the posterior longitudinal ligament.

The laminae give attachment to the ligamenta flava.

The spinous processes → **ligamentum nuchae**.

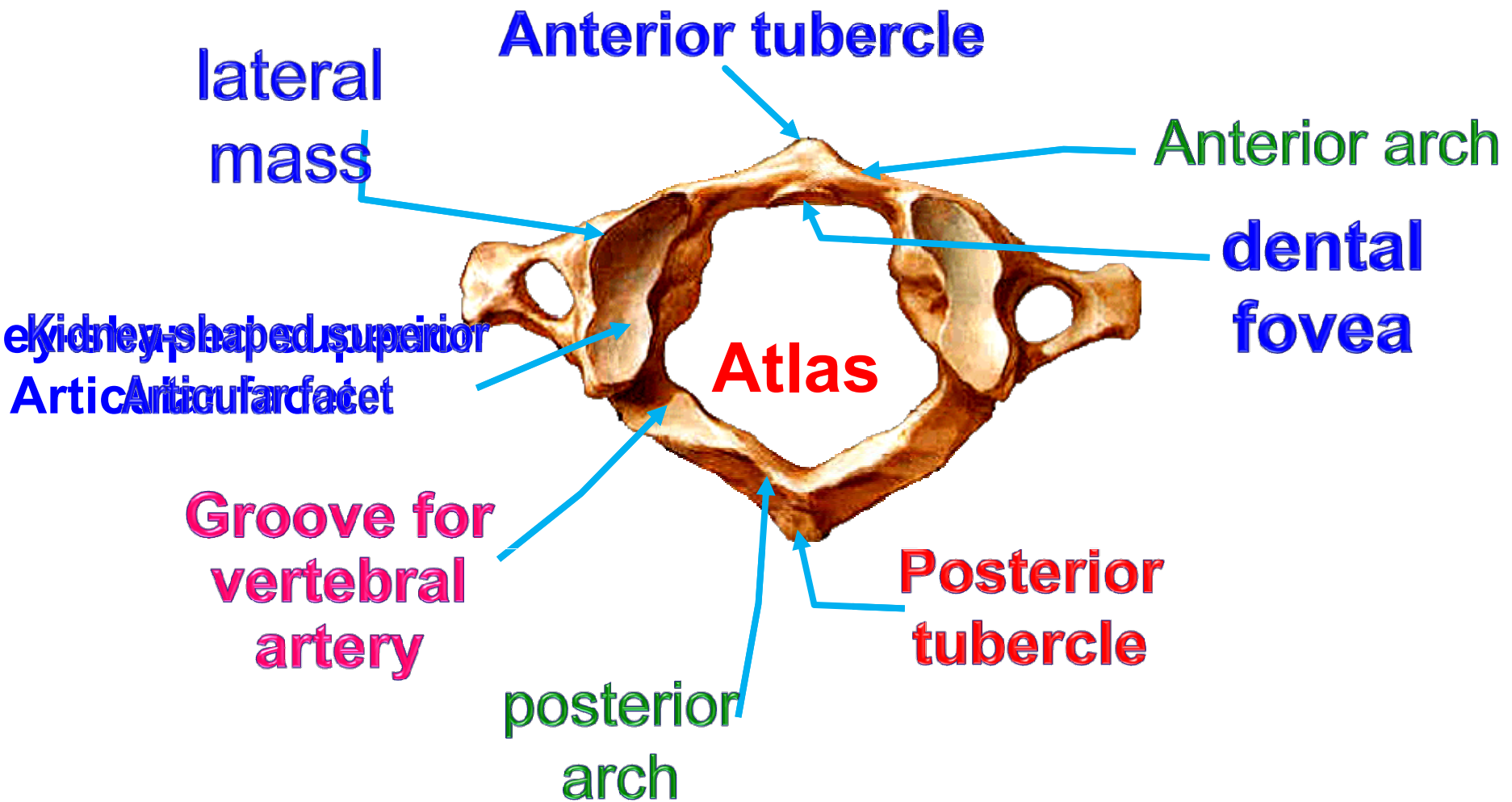
The tubercles (anterior and posterior) of the transverse processes.

The **foramina transversarium** from the 6th up to the 1st transmit the

1) Second part of the vertebral artery.

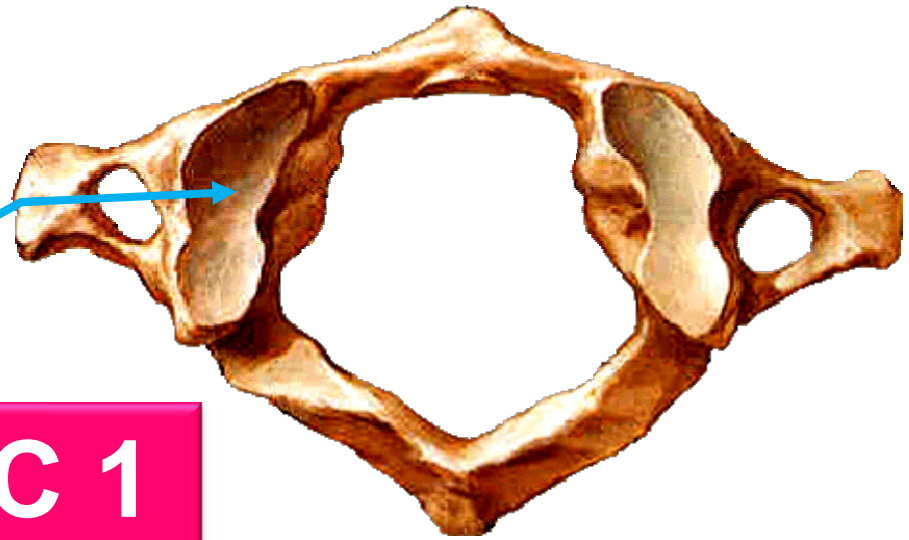
2) Sympathetic plexus around the artery.

3) Vertebral vein.



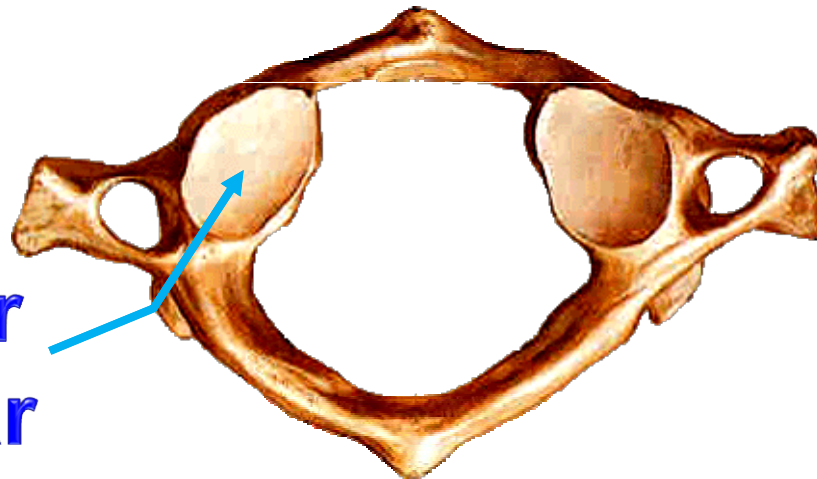
Superior surface C 1 Atlas

**Kidney-shaped
Articular facet**



Superior surface C 1

**Circular
Articular
facet**



Inferior surface C1

- **First Cervical Vertebra (Atlas)**

General features;

absence of a body.

short anterior arch and a **longer posterior arch**.

superior articular facet → **kidney-shaped (atlanto-occipital joint)**

inferior articular facet → **circular (lateral atlanto-axial joint)**

The anterior arch carries an anterior tubercle. Posteriorly, the anterior arch

carries an **articular Facet** for the dens of the axis (**median atlanto-axial joint**).

joint).

The posterior arch presents a **groove on its upper surface** for the **vertebral artery**

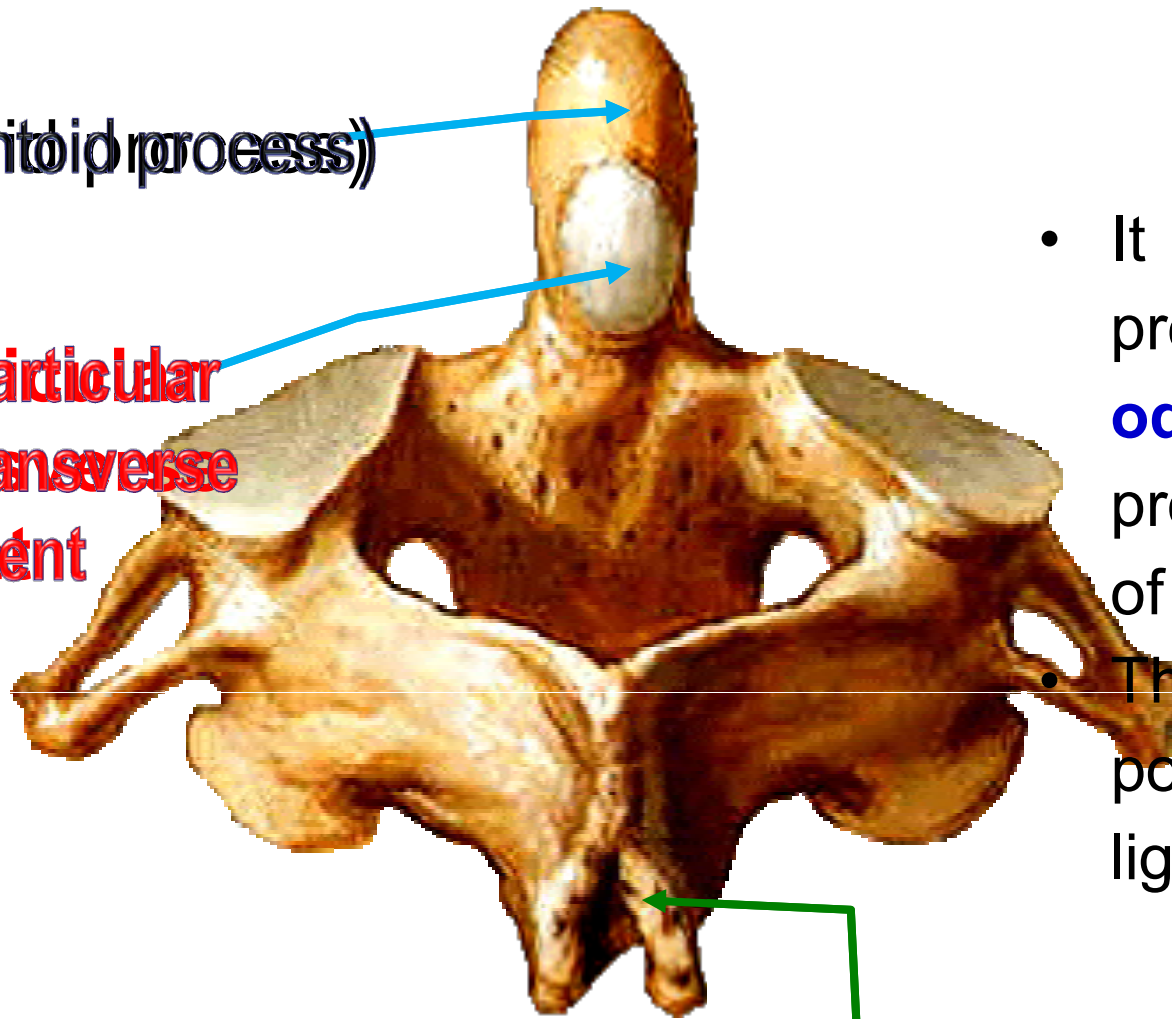
vertebral artery

The medial side of each lateral mass presents a tubercle for the

attachment of the **transverse ligament of the atlas**.

Dens (odontoid process)

Posterior articular
facet for transverse
ligament

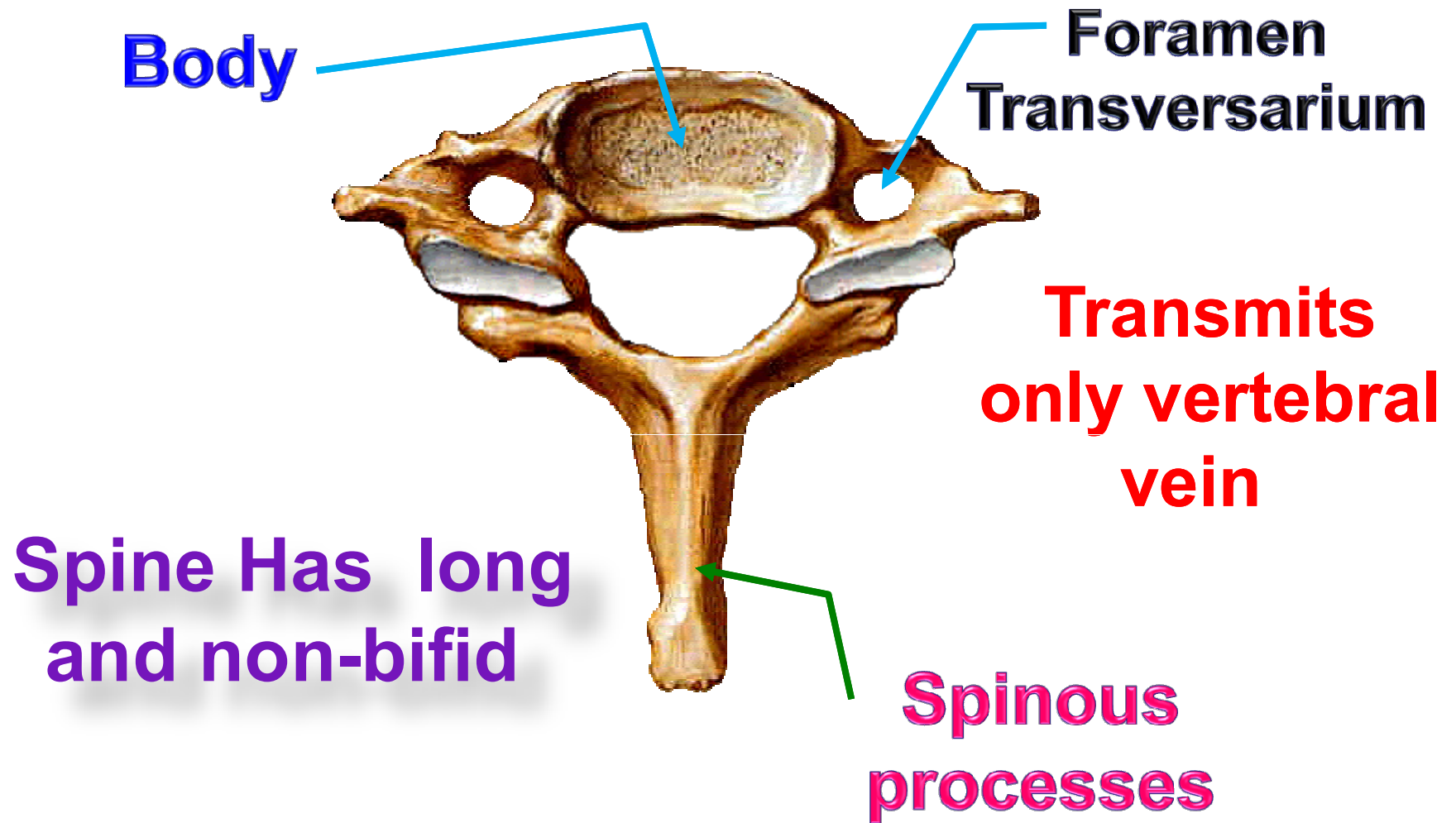


Spinous
process

Anterior-superior surface C 2 Axis

• Second Cervical Vertebra (Axis)

- It is characterized by the presence of **dens** and **odontoid process** which projects from the upper part of the body.
- The **dens** is grasped posteriorly by transverse ligament.



C 7 Vertebra

- **ATLANTO- OCCIPITAL JOINTS**

Articular surfaces:

1. The occipital condyles of the skull.

2. The superior articular kidney-shaped facets of the

and extension (**nodding**), We move the head to say

- **ATLANTO-AXIAL JOINTS**

Articular surfaces:

1. Between the inferior articular facet of the atlas and a superior articular facet of the axis.

Articular surfaces: a synovial joint of pivot type between Odontoid process of the axis and Facet on the anterior surface of the anterior arch of atlas and the transverse ligament of atlas.

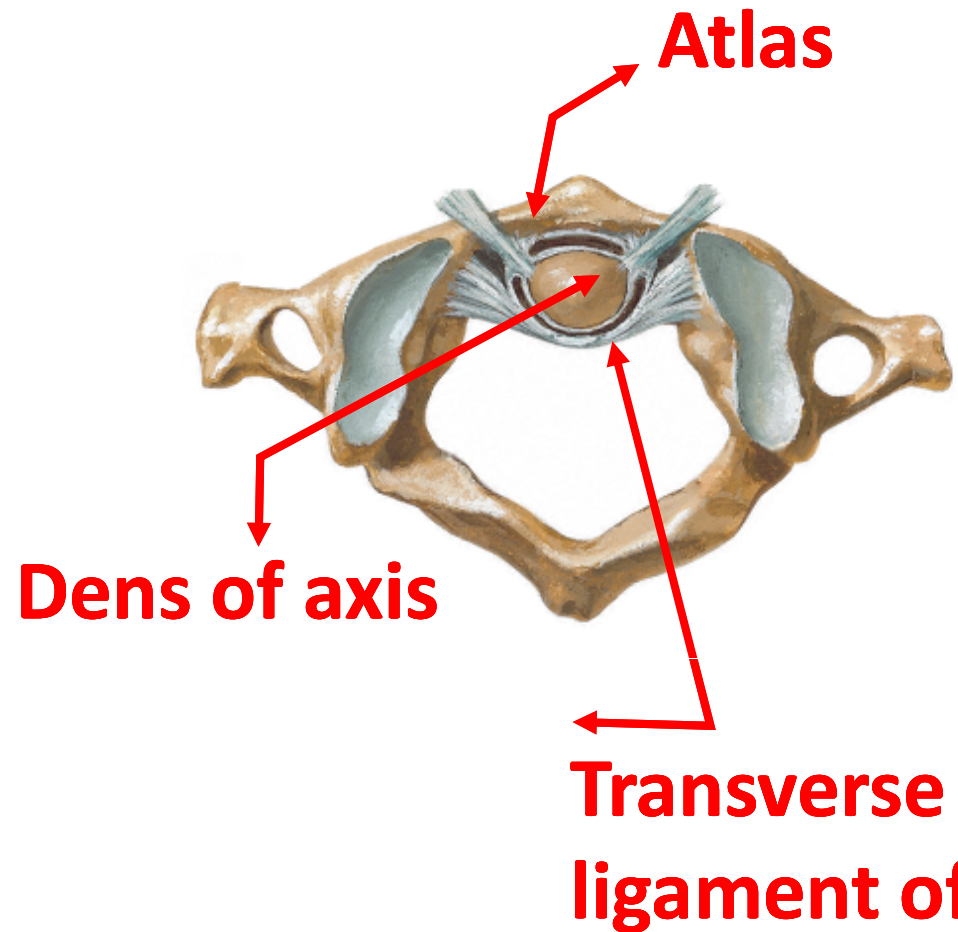
2. Allows side to side or **rotatory movements** of the

move the head to say **“NO”**

- **Applied anatomy;**

Whiplash leads to backward dislocation of the axis from the **tear of the transverse ligament.**

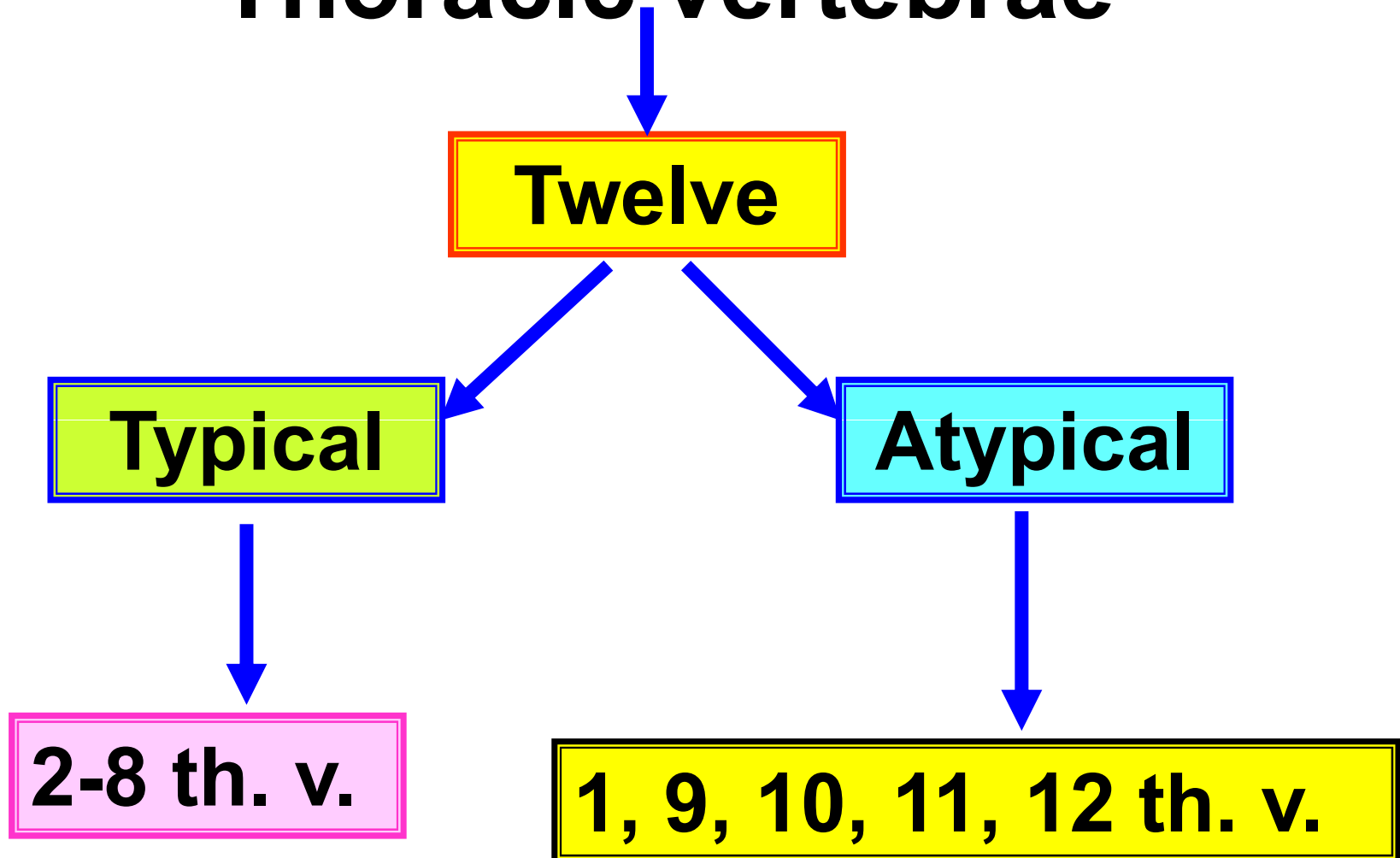
The dens of the axis is thrust backwards leading to damage of the spinal cord.

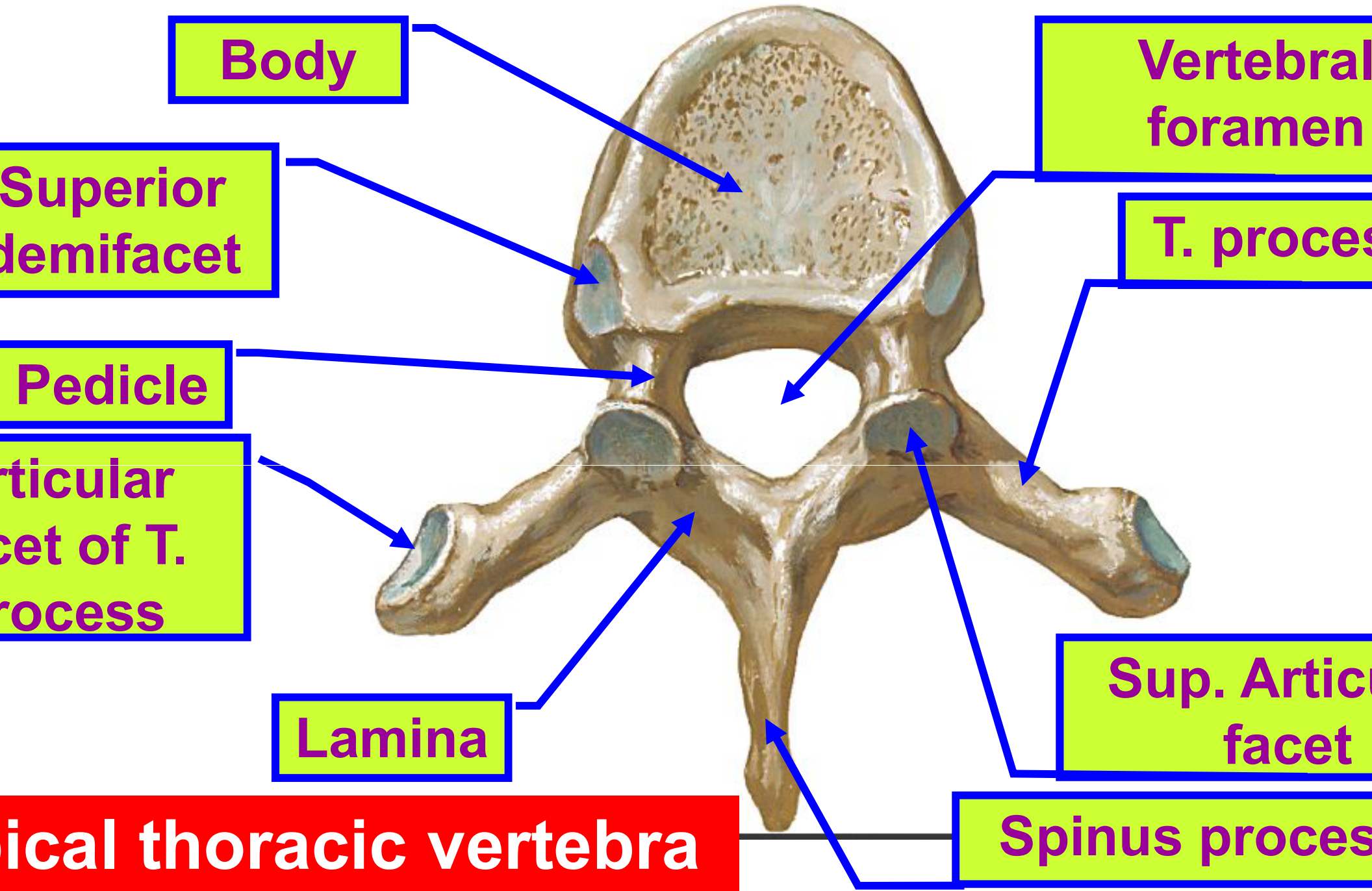


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Thoracic Vertebrae

Thoracic vertebrae





Body

Superior demifacet

Pedicle

Articular facet of T. process

Lamina

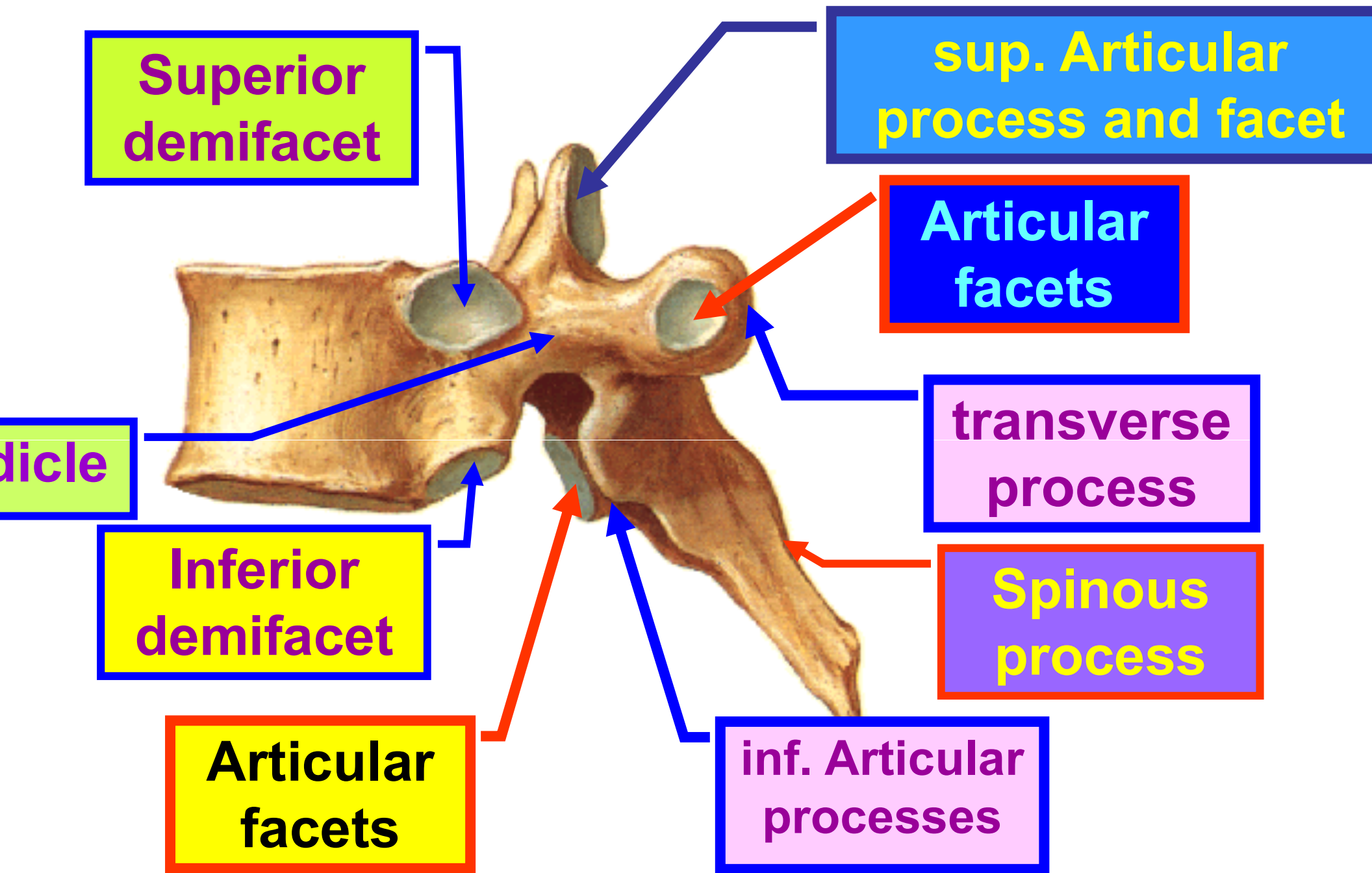
typical thoracic vertebra

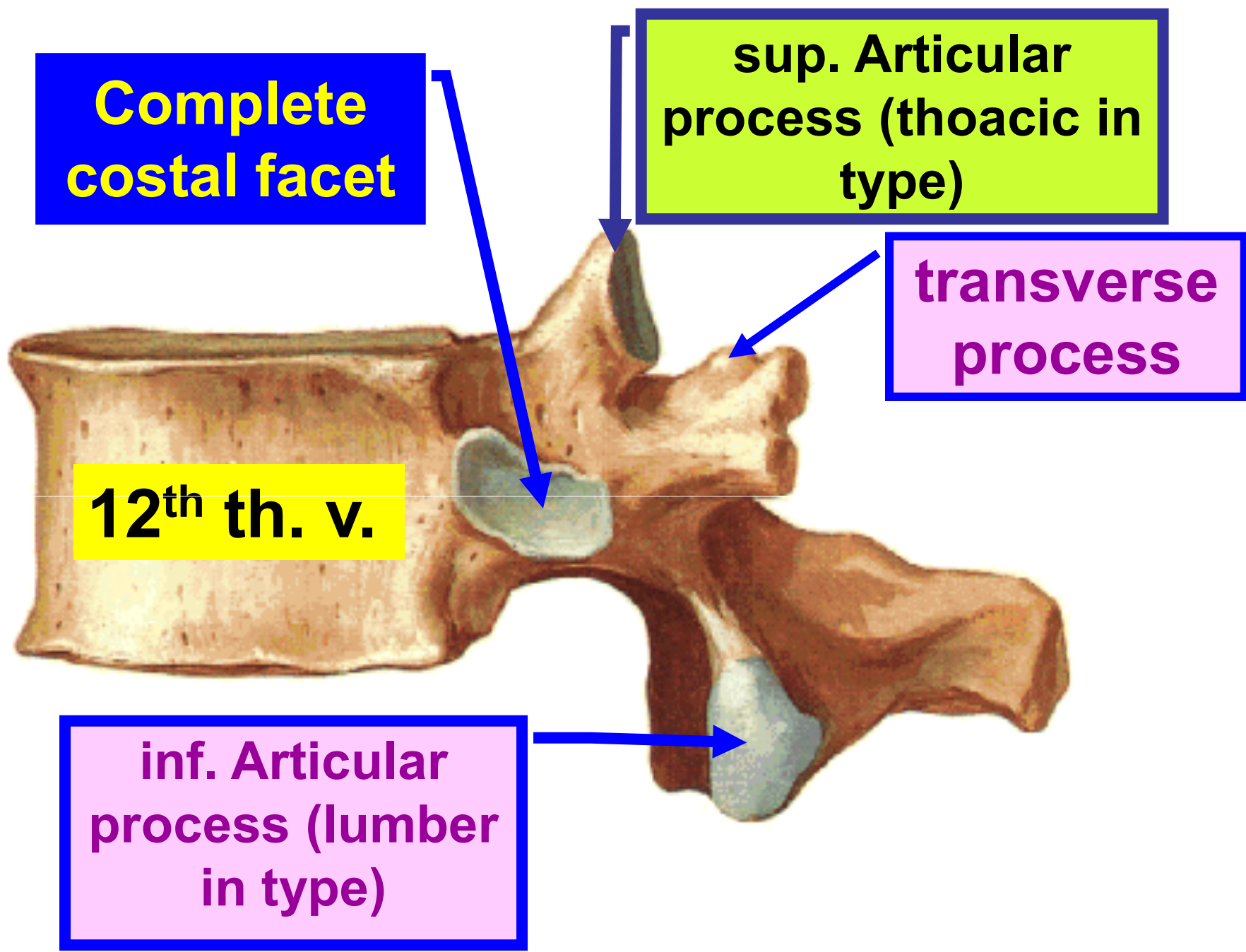
Vertebral foramen

T. process

Sup. Articular facet

Spinous process





Complete costal facet

sup. Articular process (thoacic in type)

transverse process

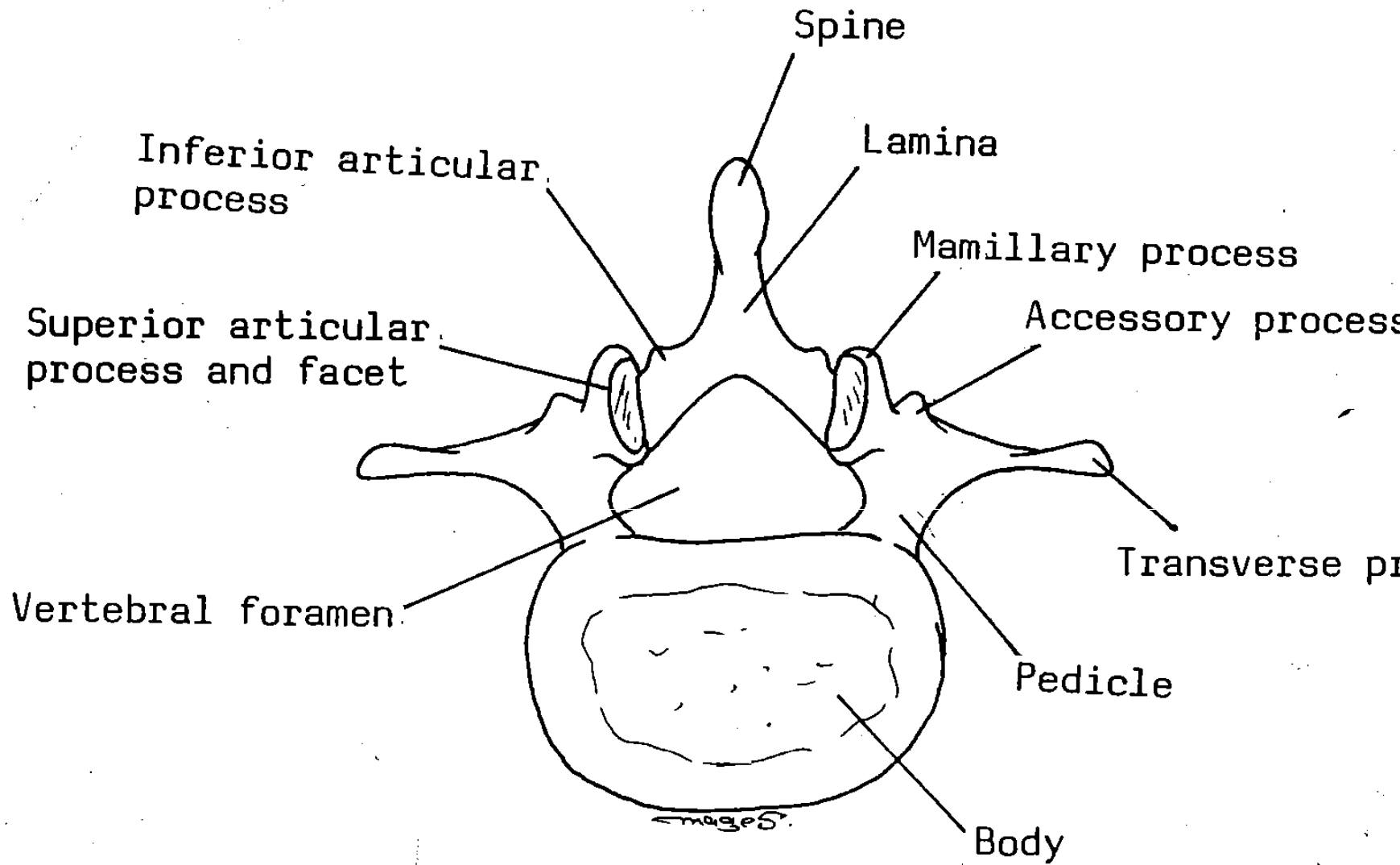
12th th. v.

inf. Articular process (lumber in type)

11 th thoracic vertebra	12 th thoracic vertebra
<p>Transverse process has no facet.</p> <p>The body kidney shaped.</p> <p>Complete circular facet close to the upper border of the body</p> <p>Inferior articular process directed forward.</p>	<p>1- Transverse process has facet.</p> <p>2- The body kidney shaped.</p> <p>3- Complete circular facet away from the upper border of the body.</p> <p>It encroaches on the middle of the pedicle.</p> <p>4- Inferior articular process directed laterally.</p>

A large, vibrant red starburst graphic with multiple sharp points, centered on a white background. The text 'Lumbar Vertebrae' is written in white across the center of the starburst.

Lumbar Vertebrae



Typical lumbar vertebra - superior view.

General features of the typical lumbar vertebrae (L1-L4)

large **body** which increases in size gradually from the 1st to the 4th
wide triangular **vertebral foramen**.

thin (long and tapering) transverse process.

accessory process behind the root of the transverse process.

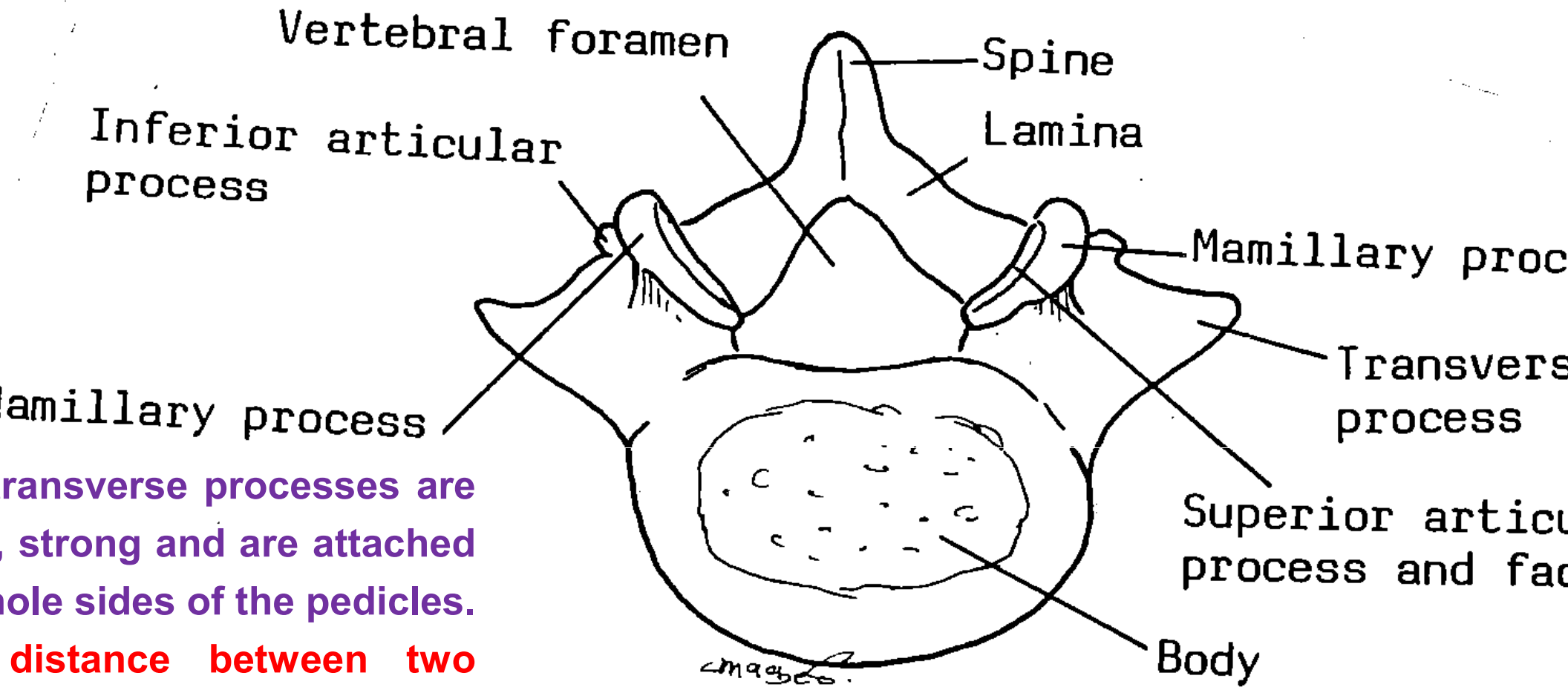
The **superior articular process** is curved with the **superior articular process**
concave medially.

The **inferior articular process** is curved with the **inferior articular process**
convex laterally.

distance between two superior articular processes (facets)
greater than the inferior.

spinous process on posterior edge of superior articular process

vertebra is broad and **quadrilateral,**



Transverse processes are strong and are attached to the sides of the pedicles. The distance between two superior articular processes is nearly equal to inferior articular processes

Fifth lumbar vertebrae - superior view.

A photograph of a golf course green with a red flag on a thin pole in the center. The background is a dense forest of tall, thin trees. The scene is lit with bright sunlight, creating strong shadows on the grass. The text 'Thank You' is overlaid in a large, 3D, orange-to-yellow gradient font.

Thank You