The greater palatine nerve is a sensory branch of the maxillary division (V2) of the trigeminal nerve (cranial nerve V). Here's a concise overview of its anatomy and clinical relevance:

 Anatomy Origin: From the pterygopalatine ganglion, which is connected to the maxillary nerve (V2).

Course:

Passes inferiorly through the greater palatine canal.

Emerges on the hard palate via the greater palatine foramen.

Travels anteriorly along the palatine groove, supplying the mucosa.

 Innervation Sensory:

Hard palate (posterior two-thirds)

Palatal mucosa and gums

Part of the posterior nasal cavity (via branches)

Accompanied by: Greater palatine artery and vein (from the descending palatine vessels)

 Clinical Relevance Greater palatine nerve block:

Used in dental procedures to anesthetize the posterior hard palate.

Injection near the greater palatine foramen (usually near the second molar).

Trigeminal neuralgia:

Although rare, this nerve may be involved in atypical facial pain.

Surgical Considerations:

Important in cleft palate surgery and palatal flap procedures.

Damage may lead to numbness or altered sensation in the hard palate.

A total of 12 pterygopalatine fossae from six formalin-fixed cadaveric heads (five female, one male) were dissected using both endoscopic approach and anatomical microscopic dissection to measure the lengths, diameters, and anatomical relationships of the nerves and arteries.

The maxillary nerve measured 15.93 ± 6.19 mm in length and 3.96 ± 0.69 mm in diameter, while the infraorbital nerve measured 24.4 ± 4.38 mm in length and 3.00 ± 0.71 mm in diameter. The greater palatine nerve measured 13.15 ± 4.25 mm in length and 2.70 ± 0.39 mm in diameter. The Vidian nerve measured 16.78 ± 1.18 mm in length and 2.15 ± 0.51 mm in diameter. The pterygopalatine ganglion had a width of 4.59 ± 1.16 mm and a height of 5.18 ± 1.63 mm. The infraorbital nerves were primarily located lateral to the infraorbital artery, while the greater palatine nerves were typically found medial to the descending palatine arteries.

The findings indicate that the maxillary, infraorbital, and greater palatine nerves, together with the

pterygopalatine ganglion, are key landmarks for defining the surgical boundaries of the pterygopalatine fossa. These insights are expected to enhance the safety and precision of surgical interventions in this complex anatomical region, ultimately improving patient outcomes [1)]

1)

Akdemir Aktaş H, Gasimov T, Acitores Cancela A, Keleş A, Gürbüz MS, Tatar İ, Başkaya MK. Endoscopic endonasal approach to the nerves of the pterygopalatine fossa: a detailed cadaveric anatomical study. Surg Radiol Anat. 2025 Apr 19;47(1):122. doi: 10.1007/s00276-025-03637-5. PMID: 40252085.