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ASSESSMENT OF ANATOMICAL VARIATIONS OF FACIAL ARTERY AND ITS CALIBRATIONS

By

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ABSTRACT

BACKGROUND AND OBJECTIVES

Accurate comprehension of both the typical and varied anatomy of the facial artery is crucial for meticulous surgical preparation and serves as a foundational knowledge for aiding surgeons in the successful execution of Maxillofacial surgeries. Given the dearth of comprehensive studies on the facial artery, this research aimed to accurately analyze the location of the facial artery by using three reference points. Additionally, to assess the effective of anastomoses with facial artery in free flap surgeries.

MATERIALS AND METHODS

A prospective study was conducted on patients who reported to the SDM Craniofacial Research Centre between March 2022 and March 2024. These patients underwent surgery for the resection of OSCC, which included excision of lesion along with neck dissection procedures. Pre-operative ultrasonography was performed to measure the diameter of the facial artery on the affected side and to identify signs of atherosclerosis. During surgery, facial artery was located using three reference points (angle of the mandible, tendon of the digastric muscle, stylohyoid muscle) and the distance from the angle of the mandible to the identified facial artery was measured. A small specimen of the facial artery, resected after ligation, was sent for histopathological evaluation to assess the area of the artery lumen and thickness of the facial arterial wall, and the presence of any atherosclerotic changes.

RESULTS

The study involved 40 patients (36 males 4 females). Aged between 20 to 70 years with 22.5% having diabetes, 37.5% having hypertension and 17.5% having other co-morbidities. 67.5% chewed tobacco, 17.5% chewed gutka and 57.5% chewed areca nut.

Pre-operative facial artery diameter ranged from 1.2 to 3.2 mm. Intra-operative distance from the angle of the mandible to the facial artery ranged from 1 to 2.5 cm. Post-operative area of the facial artery varied from 0.05 to 198 m^2 and thickness of the arterial wall ranged from 0.10 to 4.5 mm. No significant differences were found based on demographics or habits, no pre-operative atherosclerotic changes were detected. Histopathology revealed calcifications in the arterial wall of an elderly patient of 79-year-old highlighting the impact of aging on vascular health.

INTERPRETATION AND CONCLUSION

This extensive research delved into various facets concerning the facial artery, aiming to deepen surgeon's comprehension of this crucial anatomical structure. Emphasizing its significance as a dependable vascular conduit in reconstructive procedures, the study aimed to streamline the intraoperative identification of the facial artery by pinpointing three reliable reference points: angle of the mandible, tendon of the digastric muscle and the stylohyoid muscle, typically situated approximately 1.5 to 2 centimetres from the angle of the mandible. Results affirmed the facial artery's reliability as a dependable vascular pedicle for free flap surgeries, demonstrating resilience against comorbidities and habitual factors. These findings enhance understanding of the facial artery's anatomical characteristics and its relevance to head and neck surgeries, offering valuable insights for surgical preparation and patient care.

KEYWORDS

Facial artery, Angle of the mandible, Tendon of digastric muscle, Stylohyoid muscle, High Resolution Ultrasonography

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