

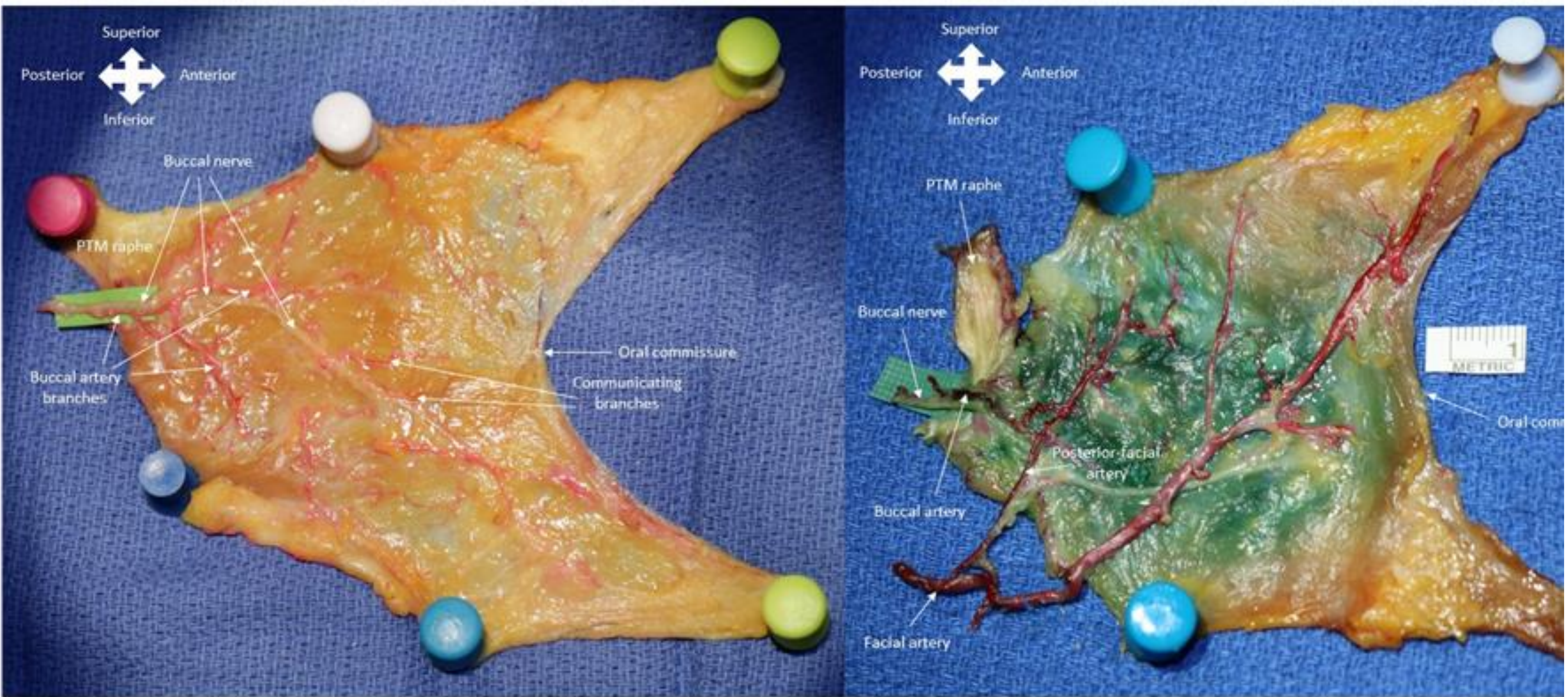
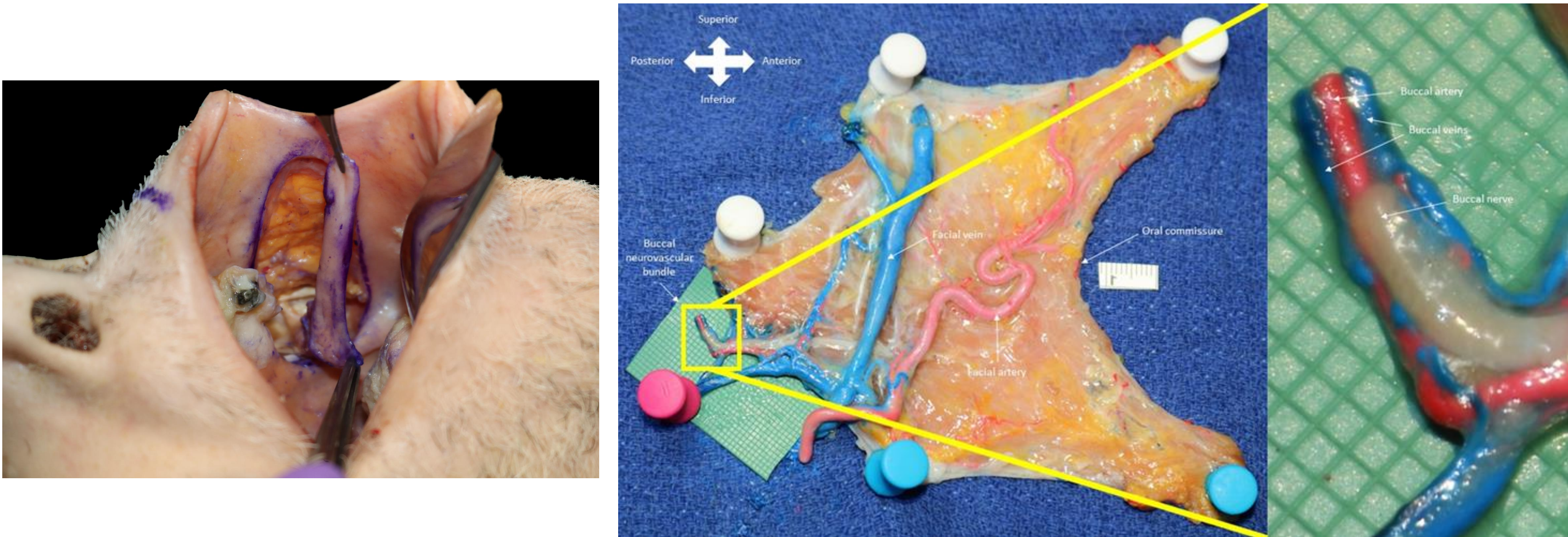
Background

- Challenges with cleft palate repair involve insufficient tissue for nasal and oral coverage while providing adequate velum length
- Buccal flaps for fistula repair were popularized by Jackson and Mann
- Buccal flap anatomy was previously theorized to be supplied by the buccal artery 0.5-1cm in front of the pterygomandibular raphe
- The anatomy and utility of islandized buccal myomucosal artery flaps for primary cleft palate is unknown

Methods

- Anatomical dissection:
 - 22 hemifacial dissections
 - Arterial red latex and venous blue latex injections
 - Anatomical measurements:
 - Buccal artery and nerve diameter
 - Flap length (measured from pterygomandibular raphe (PTM) to ipsilateral oral commissure)
 - Horizontal distance from the PTM to pedicle entrance (measured intraorally)
 - Vertical distance from maxillary tuberosity to pedicle entrance
- ICG evaluation of buccal artery
 - Evaluated buccal flap was used to generate quantitative fluorescence scores based on normalized median pixel brightness
- Clinical retrospective review of 25 consecutive primary CPs
 - All patients underwent furlow double-opposing Z-plasties with either uni or bilateral buccal myomucosal flaps for either oral or nasal lining or both

Results



The top left image demonstrates flap markings in an oblong manner just shy of the oral commissure and elevation of the flap. During the dissection the pedicle was identified as a neurovascular bundle with an intact nerve in each flap. It is important to note that due to nerve preservation sensation would not be compromised.

Results

TABLE 1. Buccal Artery Myomucosal Pedicle Flap Descriptive

Statistics	Hemiface	
	Right	Left
Flap Length (mm)	68.29±7.74	66.73±10.11
Pedicle Entrance (mm)	10.37±2.49	12.49±2.98
Pedicle Ratio (pedicle entrance/flap length)	0.15±0.04	0.19±0.03
Buccal Artery Diameter (mm)	1.01±0.36	0.90±0.20
Buccal Nerve (mm)	1.22±0.20	1.33±0.21
Communicating branch with Facial Artery (mm)	0.63±0.22	0.62±0.07
Vertical Distance (mm) [†]	11.40±3.08	11.77±4.77

Data are presented as mean ± standard deviation. Abbreviation: mm, millimeters.
[†]Distance measured from the maxillary tuberosity to the pedicle's entrance.

Clinical Experience:

36 axial pedicled propeller buccinator myomucosal flaps (25 patients)
Veau I (5), Veau II (8), Veau III (8) and Veau IV (4)
Single flap (n=14, oral layer), two flaps (n=11)
Mean patient age (15.3± 10.1 months)
Mean operative and flap harvest times (310.96 ± 63.4 and 40 minutes)
Mean follow-up (11.3 ± 9.8 months)
The flap always reached the contralateral lateral pharyngeal wall, and the buccal nerve was always preserved
4 (11.1%) flaps underwent revision to release the scar bridging behind the maxillary tuberosity
Flap necrosis (5.6%, 2/36 flaps)

Conclusions

The buccal neurovascular pedicle main supply to this axial pedicled islanded propeller flap
The buccal neurovascular pedicle entered at 1/6th the length of the flap
Harvest all the buccinator muscle after the first 1/6 of the dissection from the commissure
Advantages: avoid a second surgery to divide the pedicle, allows the preservation of the buccal nerve, better mobilization
Avoid extensive dissection of the pedicle to avoid damaging these small vessels
This preliminary clinical study showed promising outcomes which need to be confirmed over long-term.