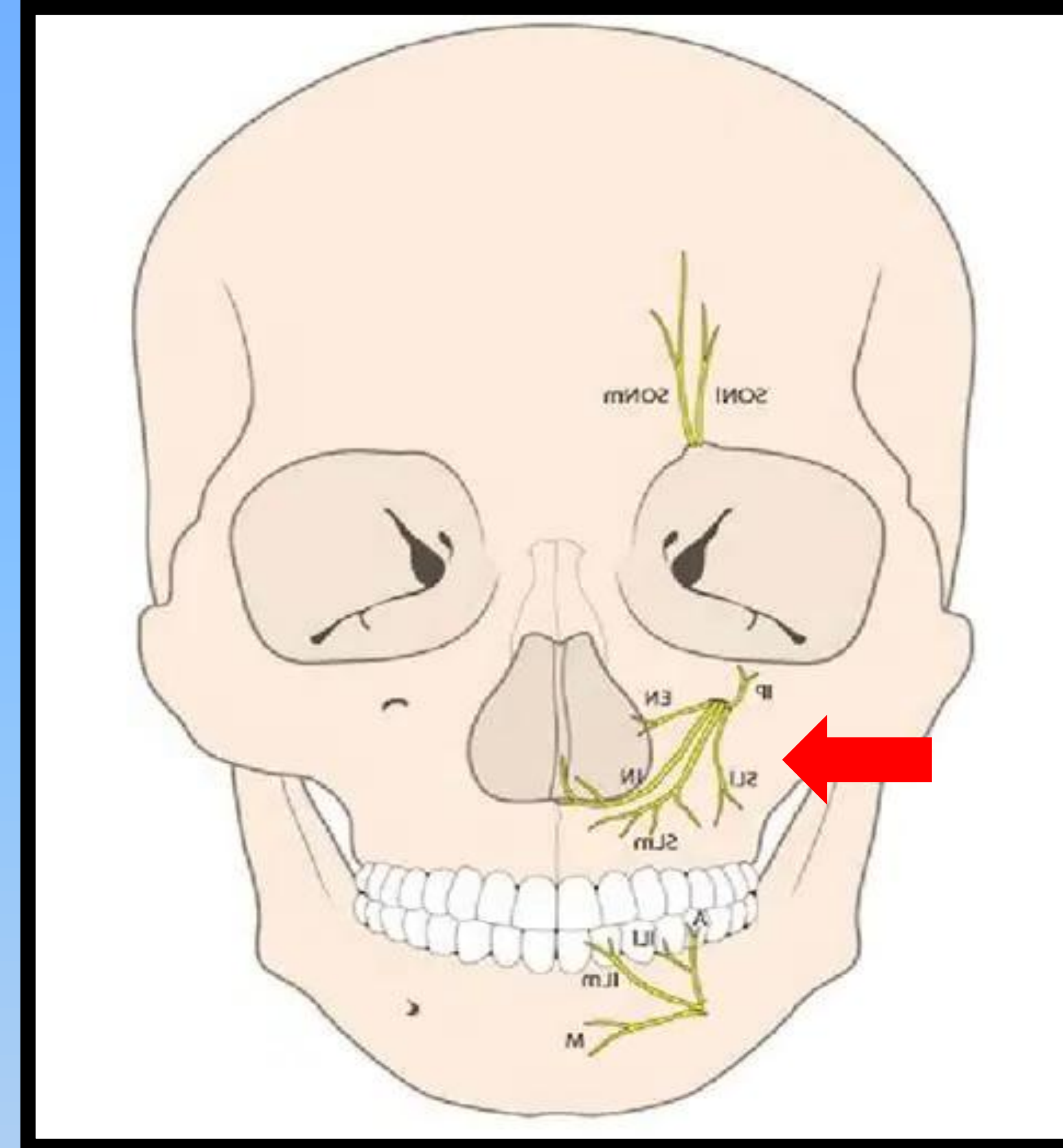


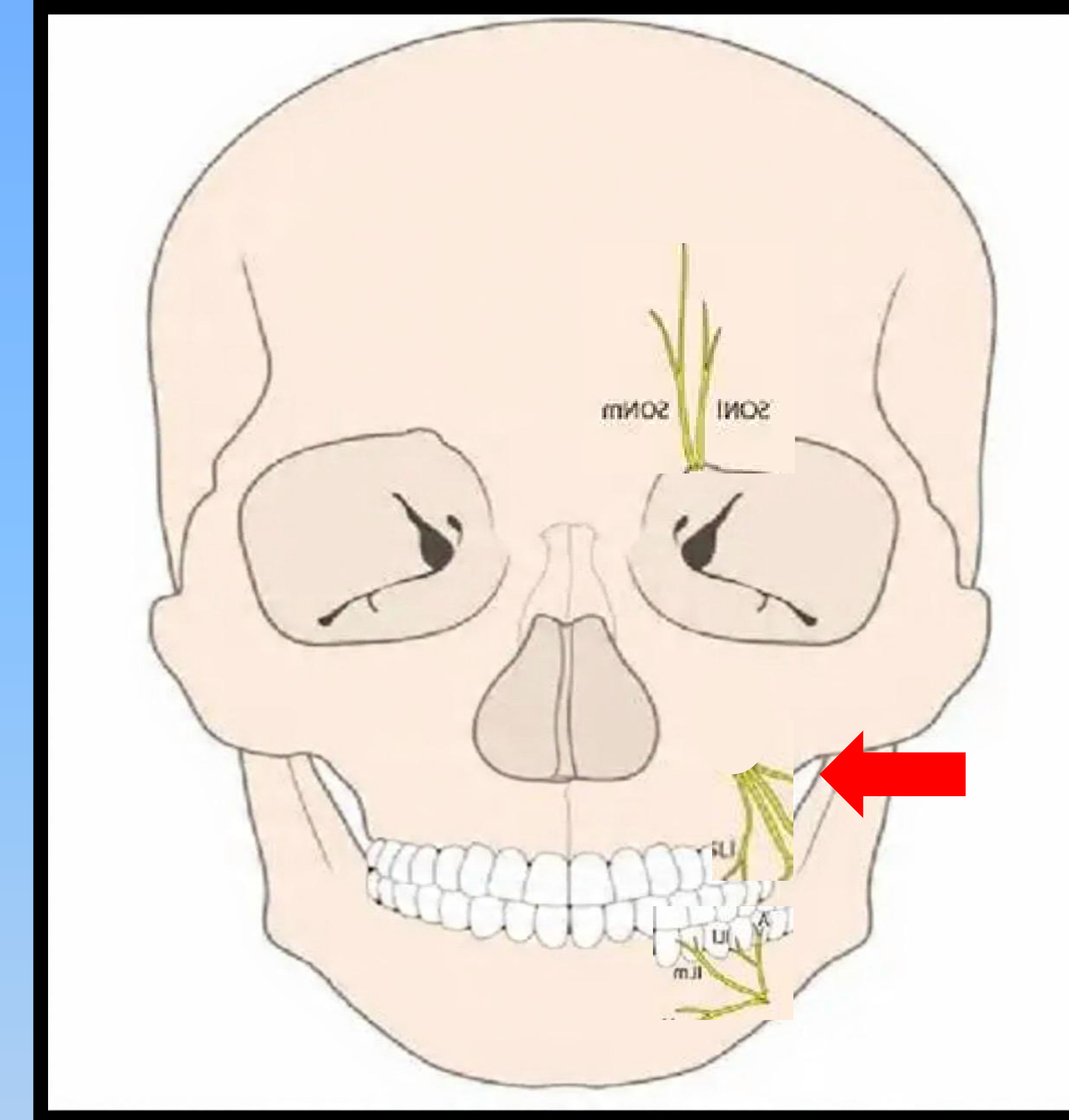
# Post-Implant Hyperalgesia in a Full Arch Maxillary Case: Anatomic Variation of the Infraorbital Nerve

Erica L Queiroz-Hewitt<sup>1</sup>, Kenya Hoover<sup>1</sup>, Camila L. Jabr<sup>2</sup> Sarah Bessi<sup>2</sup>, Marcelo Zamperlini<sup>3</sup>

<sup>1</sup> Private Practice, Orlando FL, USA, <sup>2</sup> 4Surgery Institute, Sao Carlos, SP, Brazil, <sup>3</sup> Private Practice, Campinas, SP, Brazil



Infraorbital Normal Anatomy



Infraorbital Anatomical Variation

## Introduction

Full-arch maxillary rehabilitation often employ All-on-X or similar implant configurations. Postoperative facial pain caused by an implant placement may have multiple etiologies: inflammation, infection or nerve damage. Anatomical variation of the infraorbital nerve (ION) can influence pain perception after implant placement in the maxilla. Recognition of nerve anatomy is critical during planning and surgical repositioning of implants, particularly when transitioning from standard reconstructions (All-on-X) to alternative strategies (zygomatic implants). This case illustrates how ION variation contributed to hyperalgesia and how surgical decision-making (removal of implant and later zygomatic implant placement ) led to symptom resolution. It also highlights the value of imaging and intraoperative nerve localization in complex maxillofacial implant procedures.

# Post-Implant Hyperalgesia in a Full Arch Maxillary Case: Anatomic Variation of the Infraorbital Nerve

Erica L Queiroz-Hewitt<sup>1</sup>, Kenya Hoover<sup>1</sup>, Camila L. Jabr<sup>2</sup>, Sarah Bessi<sup>2</sup>, Marcelo Zamperlini<sup>3</sup>

<sup>1</sup> Private Practice, Orlando FL, USA, <sup>2</sup> 4Surgery Institute, Sao Carlos, SP, Brazil, <sup>3</sup> Private Practice, Campinas, SP, Brazil

## Methods

Single-patient case report.

**Patient:** 52-year-old male, ASA II, seeking maxillary rehabilitation.

**Initial treatment:** Four implants placed in the maxilla with a standard All-on-4 configuration.

**Postoperative symptoms:** Persistent pain despite occlusal adjustments and anti-inflammatory therapy. No signs of infection.

**Diagnostic:** Clinical assessment of pain characteristics.

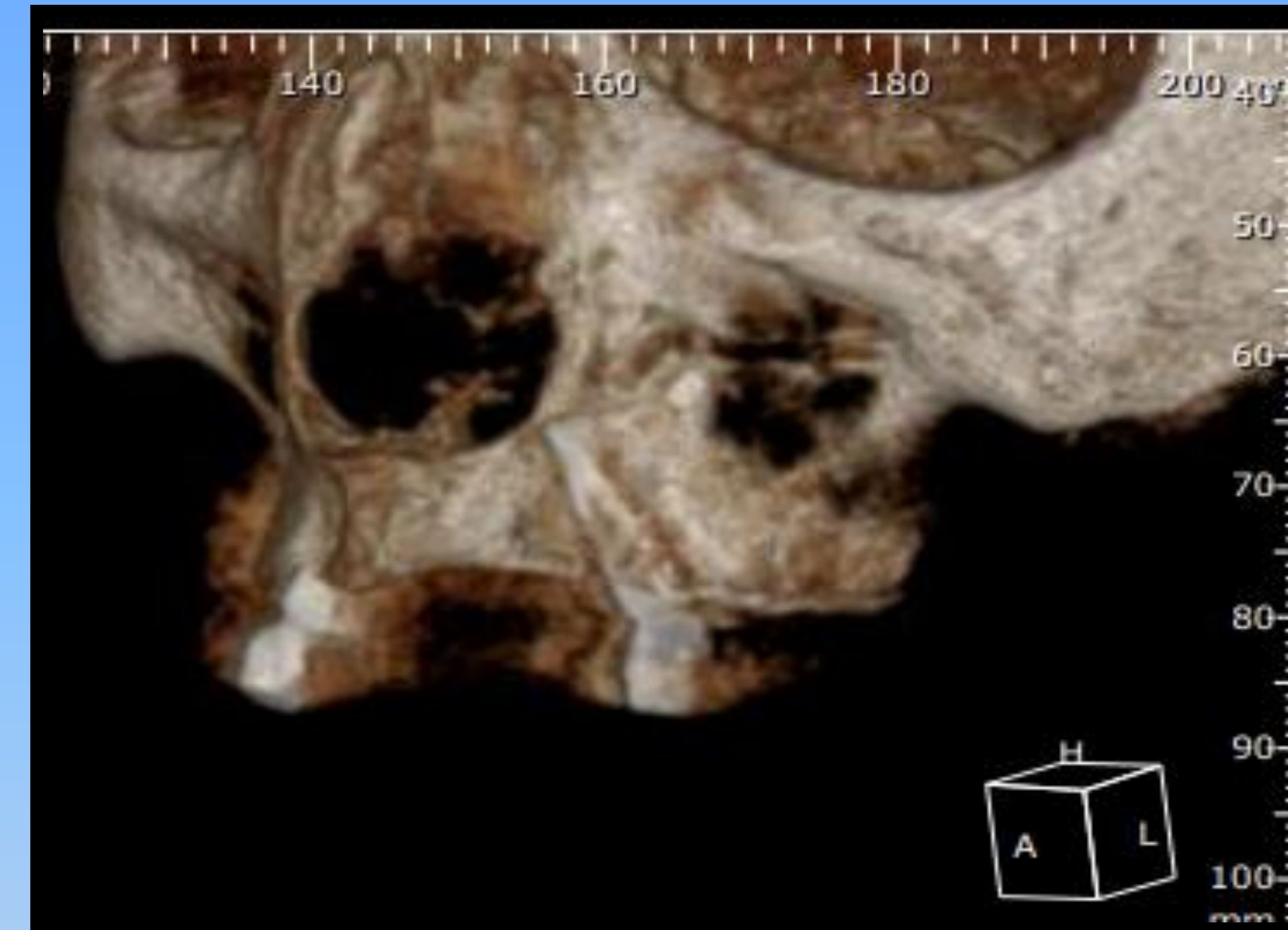
Imaging: CT scans to evaluate implant position and surrounding anatomy.

## Intervention strategy

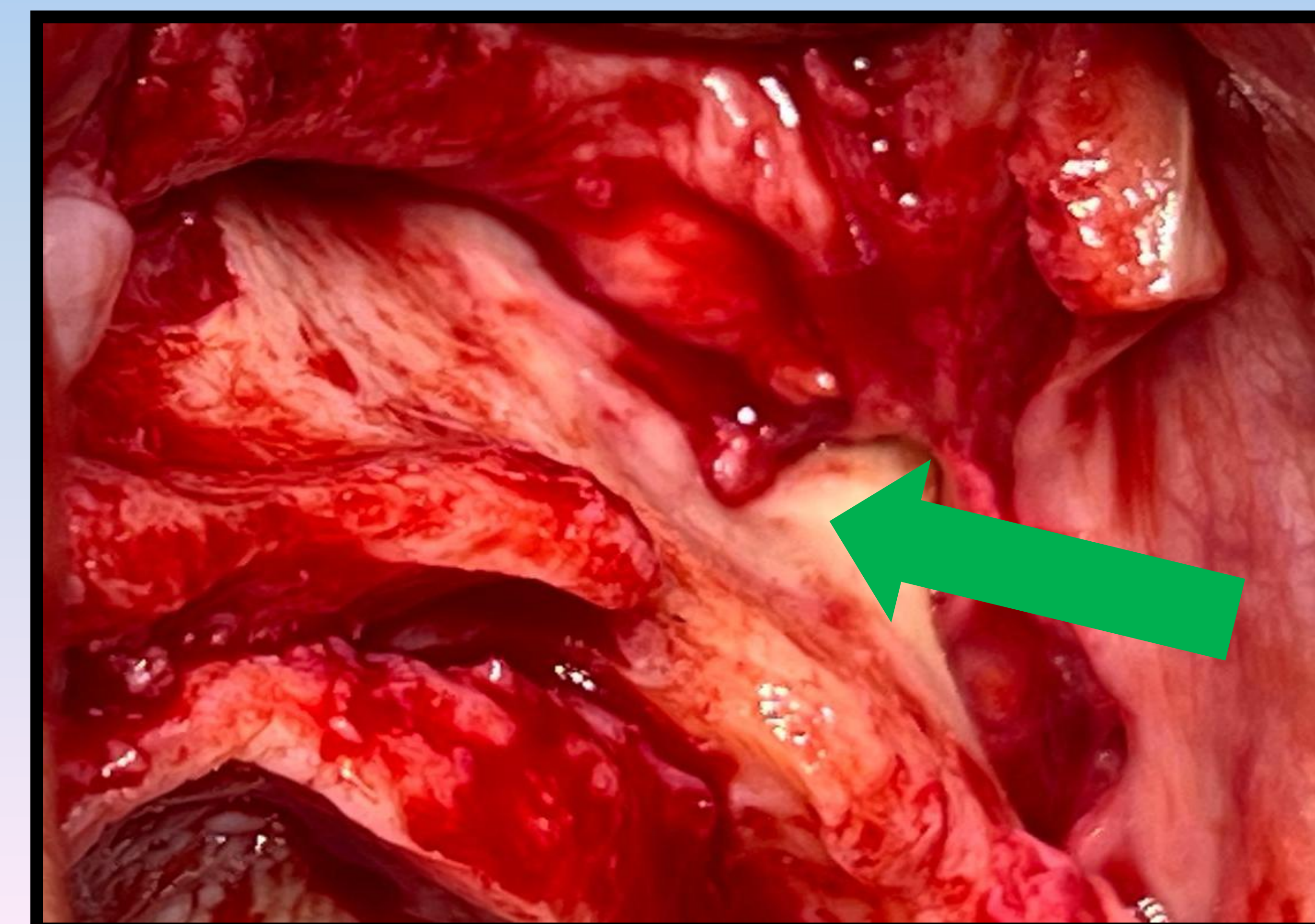
Step 1: Removal of the left anterior implant - without resolution of symptoms. Removal of posterior implant after conservative measures and diagnostic imaging.

Step 2: Reassessment and planning for alternative treatment: placement of a zygomatic implant in a more posterior position.

Step 3: Intraoperative nerve localization and reassessment of infraorbital nerve position during zygomatic implant placement.



CT Scan showing posterior left implant in position – patient in pain.



Picture shows infra-orbital nerve in a much lower position - previously placed implants were removed.

# Post-Implant Hyperalgesia in a Full Arch Maxillary Case: Anatomic Variation of the Infraorbital Nerve

Erica L Queiroz-Hewitt<sup>1</sup>, Kenya Hoover<sup>1</sup>, Camila L. Jabr<sup>2</sup> Sarah Bessi<sup>2</sup>, Marcelo Zamperlini<sup>3</sup>

<sup>1</sup> Private Practice, Orlando FL, USA, <sup>2</sup> 4Surgery Institute, Sao Carlos, SP, Brazil, <sup>3</sup> Private Practice, Campinas, SP, Brazil

## Results

Post-removal of the posterior implant: patient reported complete resolution of pain. After placement of the zygomatic implant in a more posterior position, continued pain absence was observed.

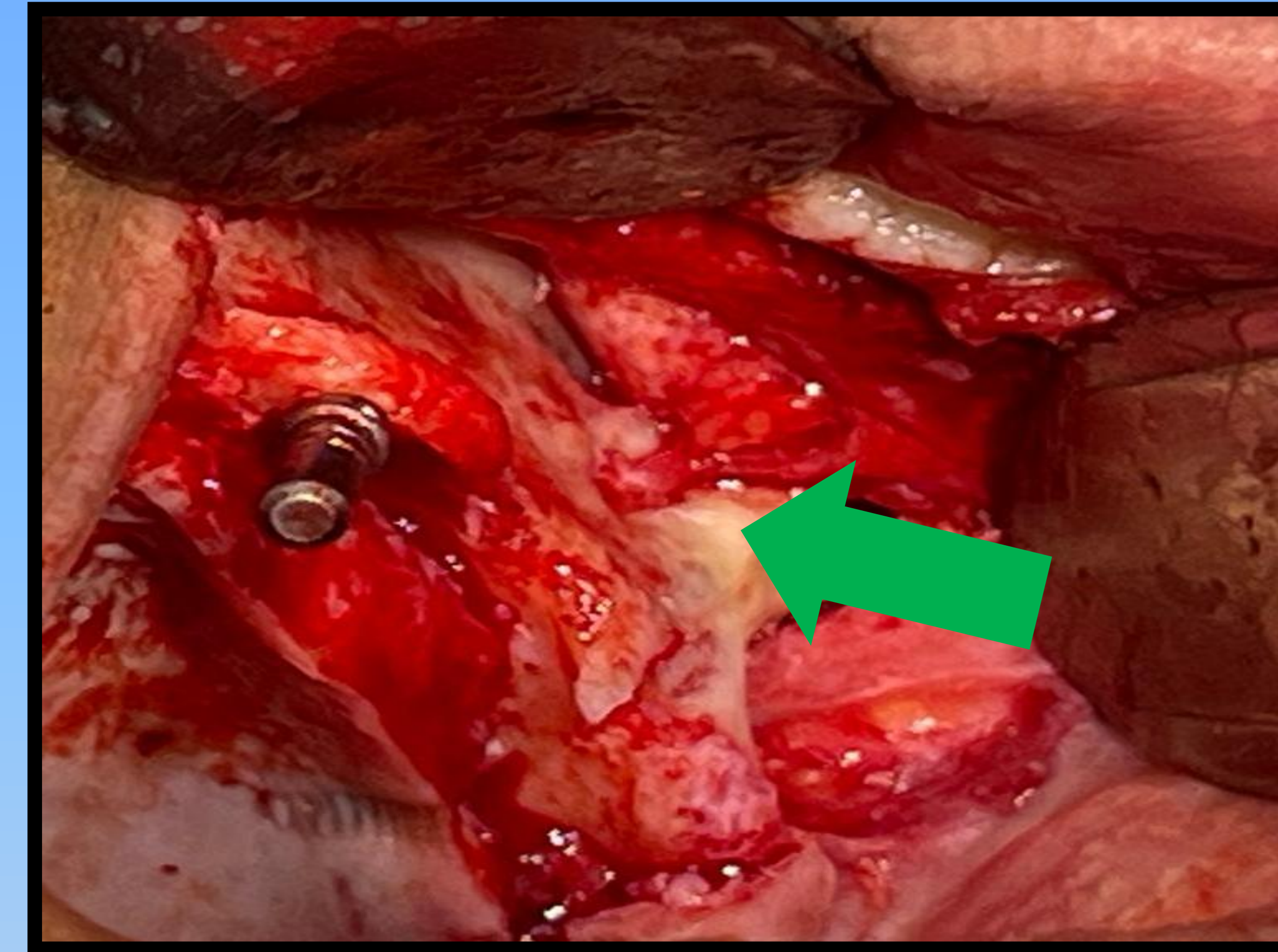
## Anatomic findings

Intraoperative assessment during zygomatic implant placement revealed the infraorbital nerve to be positioned lower than typical anatomy.

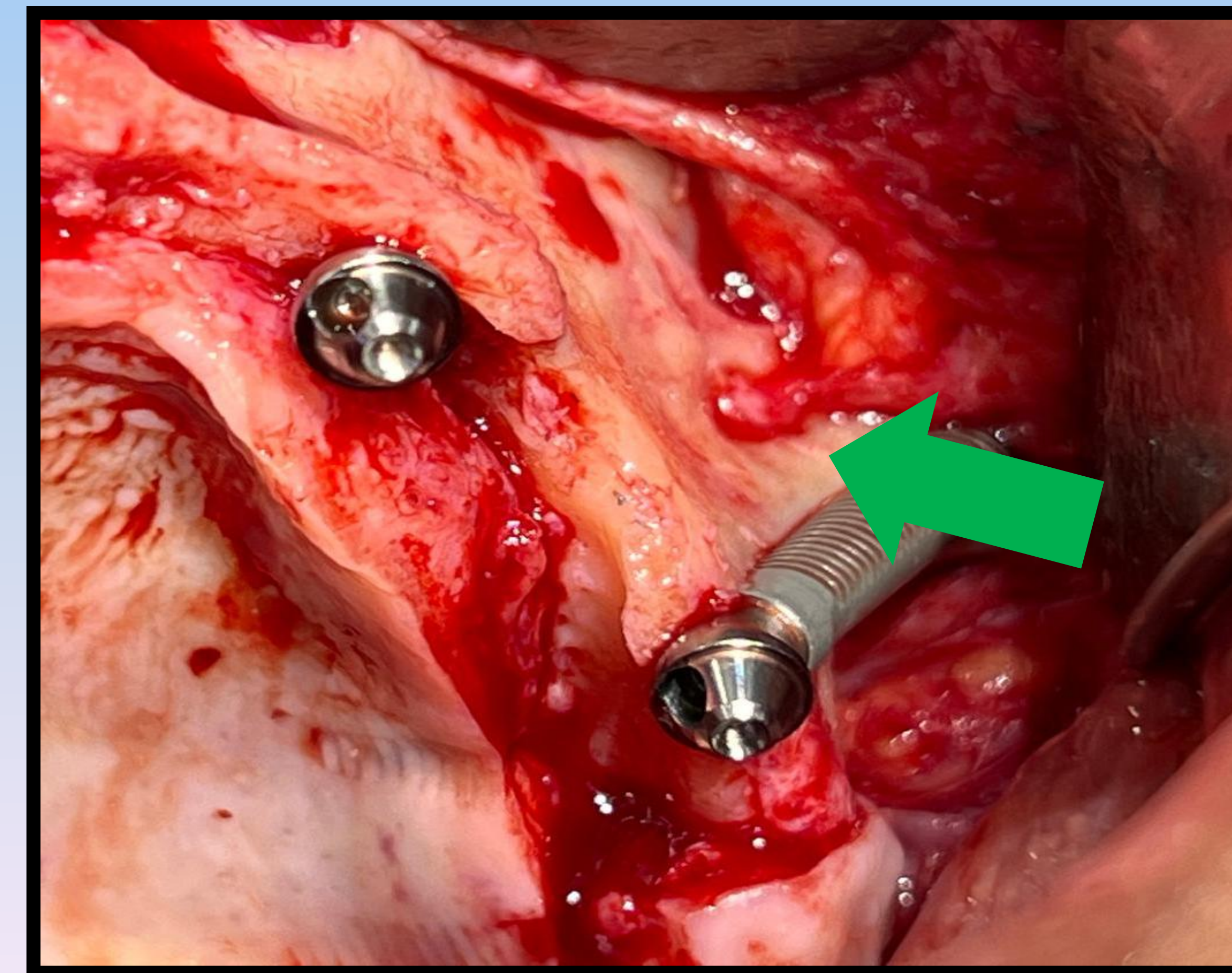
The posterior implant was found in proximity to the inferior/low-lying infraorbital nerve, suggesting a nerve-related etiology for hyperalgesia.

## Final diagnosis

Hyperalgesia attributed to infraorbital nerve anatomical variation (low-lying infraorbital nerve) contributing to pain with the initial all-on-4 configuration.



New standard anterior implant placement surgery .



Zygomatic implant placement surgery. ZI placed in a more posterior position.

# Post-Implant Hyperalgesia in a Full Arch Maxillary Case: Anatomic Variation of the Infraorbital Nerve

Erica L Queiroz-Hewitt<sup>1</sup>, Kenya Hoover<sup>1</sup>, Camila L. Jabr<sup>2</sup>, Sarah Bessi<sup>2</sup>, Marcelo Zamperlini<sup>3</sup>

<sup>1</sup> Private Practice, Orlando FL, USA, <sup>2</sup> 4Surgery Institute, Sao Carlos, SP, Brazil, <sup>3</sup> Private Practice, Campinas, SP, Brazil

## Discussion

The case supports infraorbital nerve anatomical variation as a contributing cause of postoperative hyperalgesia in maxillary implant rehabilitation. Preoperative imaging should be scrutinized for canal/foramen anatomy and potential nerve variations in full-arch maxillary rehabilitations. Consideration of alternative anchor strategies (e.g., zygomatic implants) may be warranted when nerve variation is suspected or identified. Intraoperative nerve localization and careful flap handling can minimize iatrogenic nerve injury and optimize outcomes.

## Conclusion

In this case, a hyperalgesia episode after maxillary All-on-4 placement was linked to a low-lying infraorbital nerve variant. Removal of the posterior implant resolved pain, and a subsequent zygomatic implant placed in a new position provided a functional rehabilitation without recurrent pain. The case underscores the importance of recognizing infraorbital nerve anatomical variation as a potential cause of implant-related neuropathic pain and adapting surgical plans accordingly to optimize patient outcomes.



CT Scan showing infra-orbital foramen in a much lower position than normal.