

## INTRODUCTION

Since its first appearance in the literature in 1980, maxillary sinus elevation graft via a lateral sinus window (LSW) approach has proven to be a successful and predictable procedure for increasing bone volume for implant placement<sup>1</sup>. However, anatomical limitations including presence of multiple septa; running in an antero-posterior direction, previous failed sinus elevation, healed oroantral fistula, or a defect in the lateral wall from a difficult extraction may complicate the LSW approach. In such cases, a palatal sinus window (PSW) approach might be indicated.

The PSW approach may have advantages over a LSW approach by providing direct access to the medial wall of an insufficiently grafted sinus, less postoperative pain and inflammation, allowing for immediate insertion of existing partial denture following sinus elevation surgery<sup>2,3</sup>.

This case report follows a case in which a lateral window approach sinus graft was done and remediated through a palatal window approach.

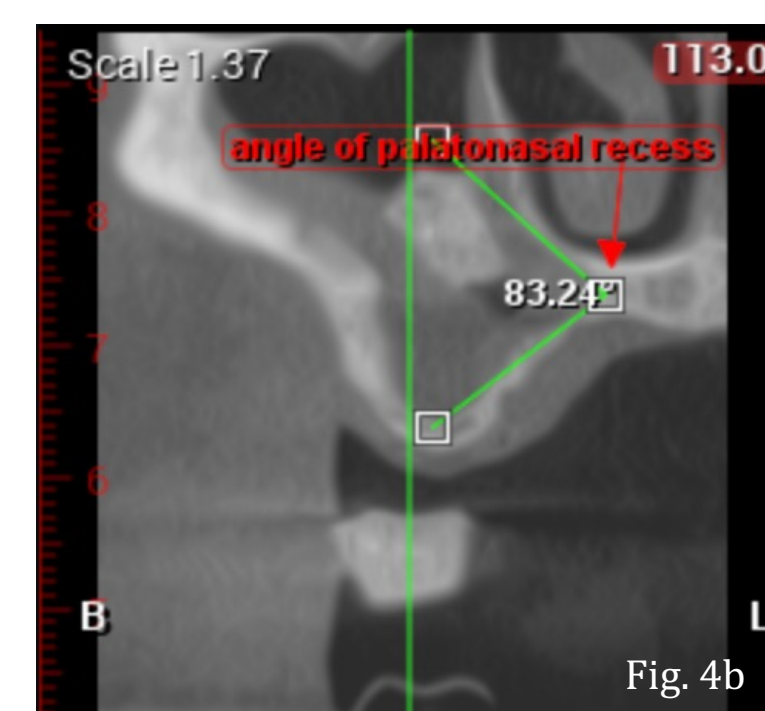
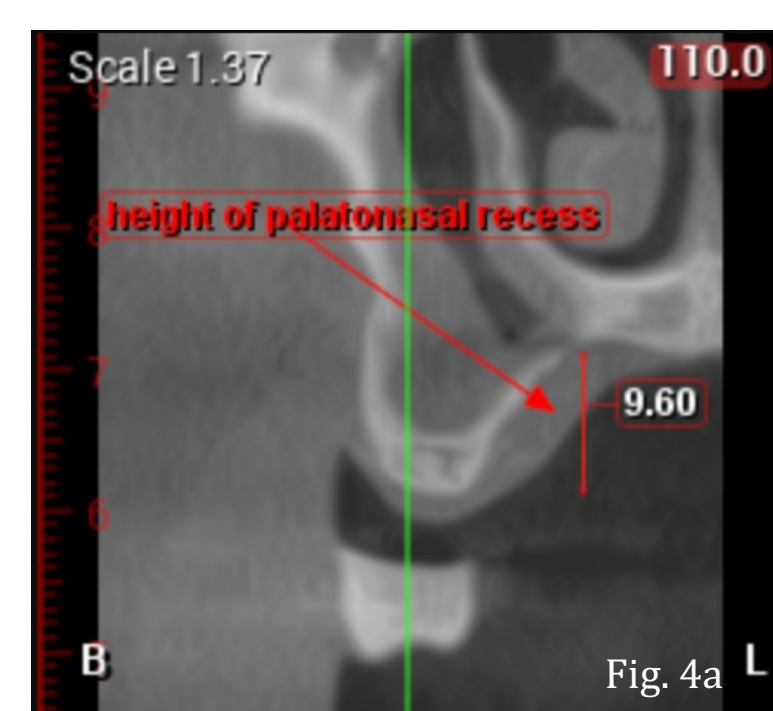
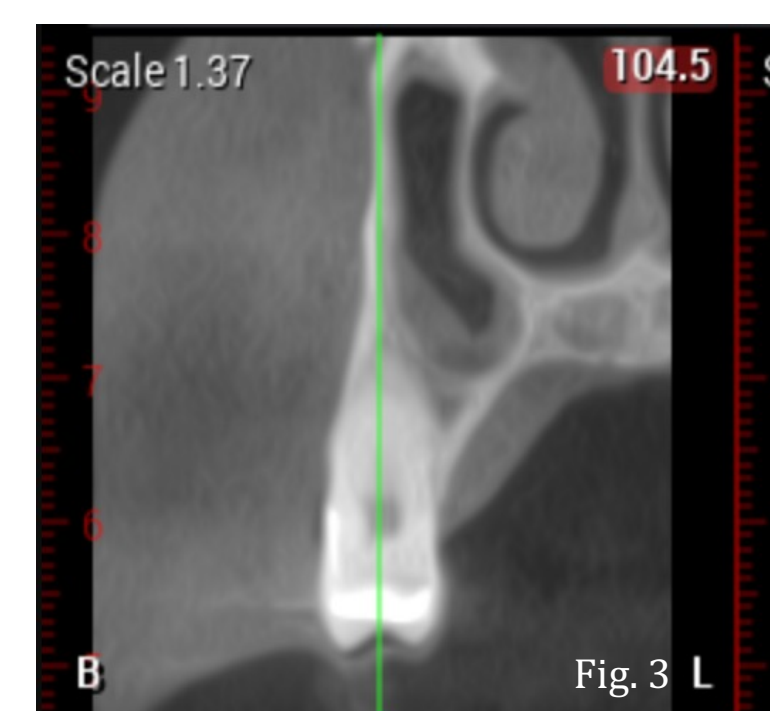
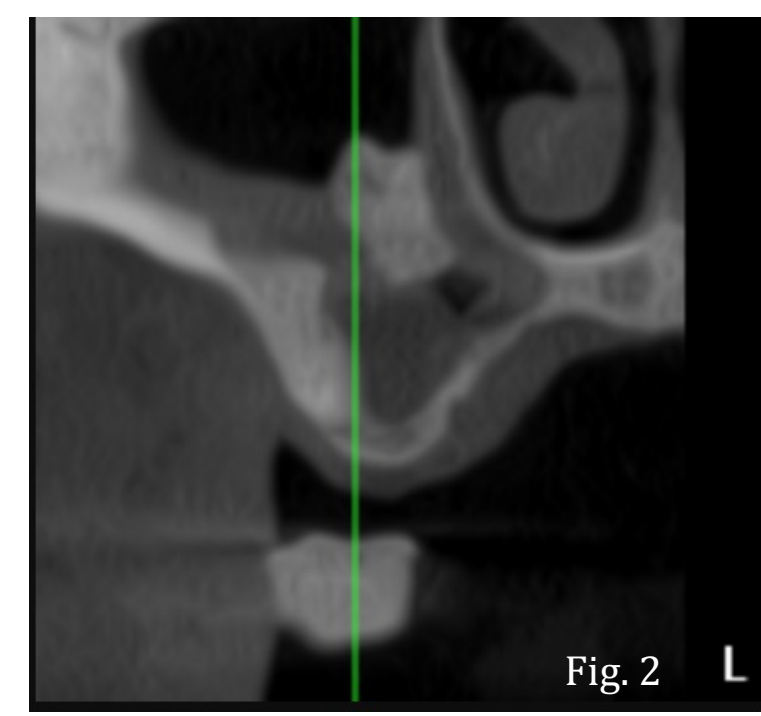
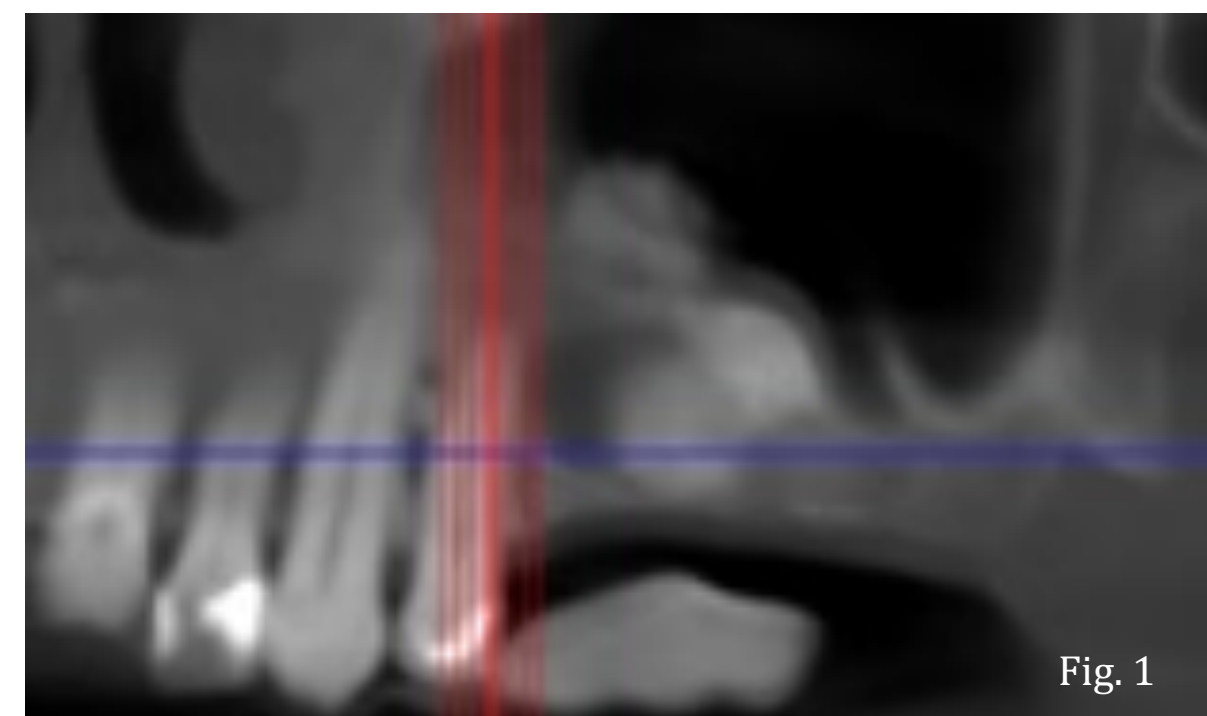
## DIAGNOSIS

The following case (Fig. 1) indicated the need for a palatal approach based on the pre-existing anatomical factors as well as a history of complications related to a lateral approach sinus graft.

Anatomically, the sinus presented with less than 2mm crestal bone height and an 8mm area on the palatal wall of the alveolus in which to make an access antrostomy. (Fig. 2). The greater palatine artery was located in away from the area of flap reflection. Also, the tooth just anterior to the proposed window area was facial in position, likely positioning the apex of the tooth just inside the proposed window area (Fig. 3), with the likely absence of a facial bony plate.

The CBCT-scan view revealed mild to moderate sinus membrane thickening following inadequate repair of a previous large perforation, resulting in a free-floating grafting material apically as well as an ungrafted region towards the medial aspect of the sinus, limiting the placement of the implant in a prosthetically driven location.

Lastly, an acute palato-nasal recess of 83 degrees was present at a height from the crest that was less than 10mm (Fig. 4A-B), placing this location well within the risk area according to a study by Chan, et al<sup>4</sup>.



## CASE PRESENTATION

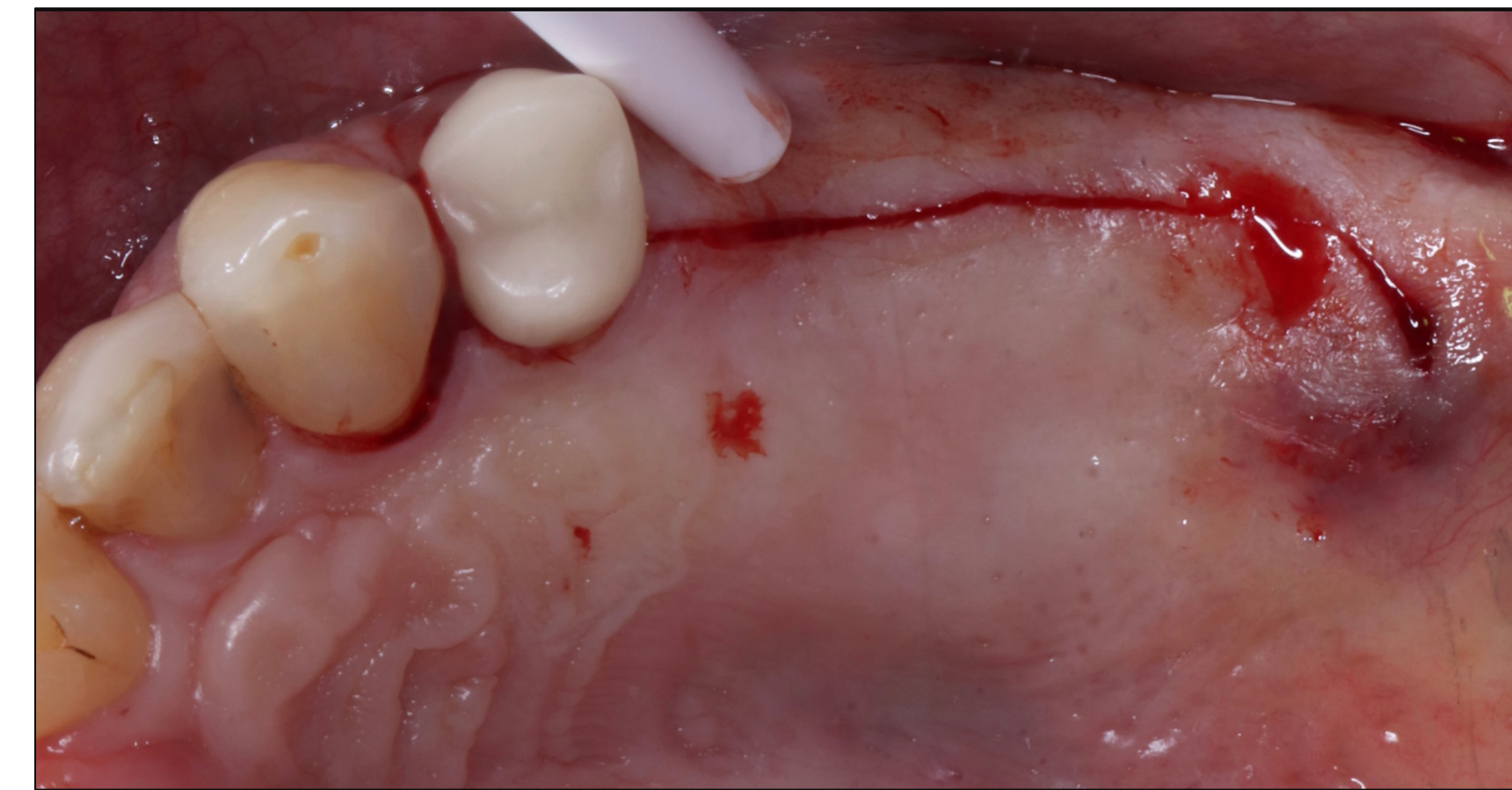


Fig. 6

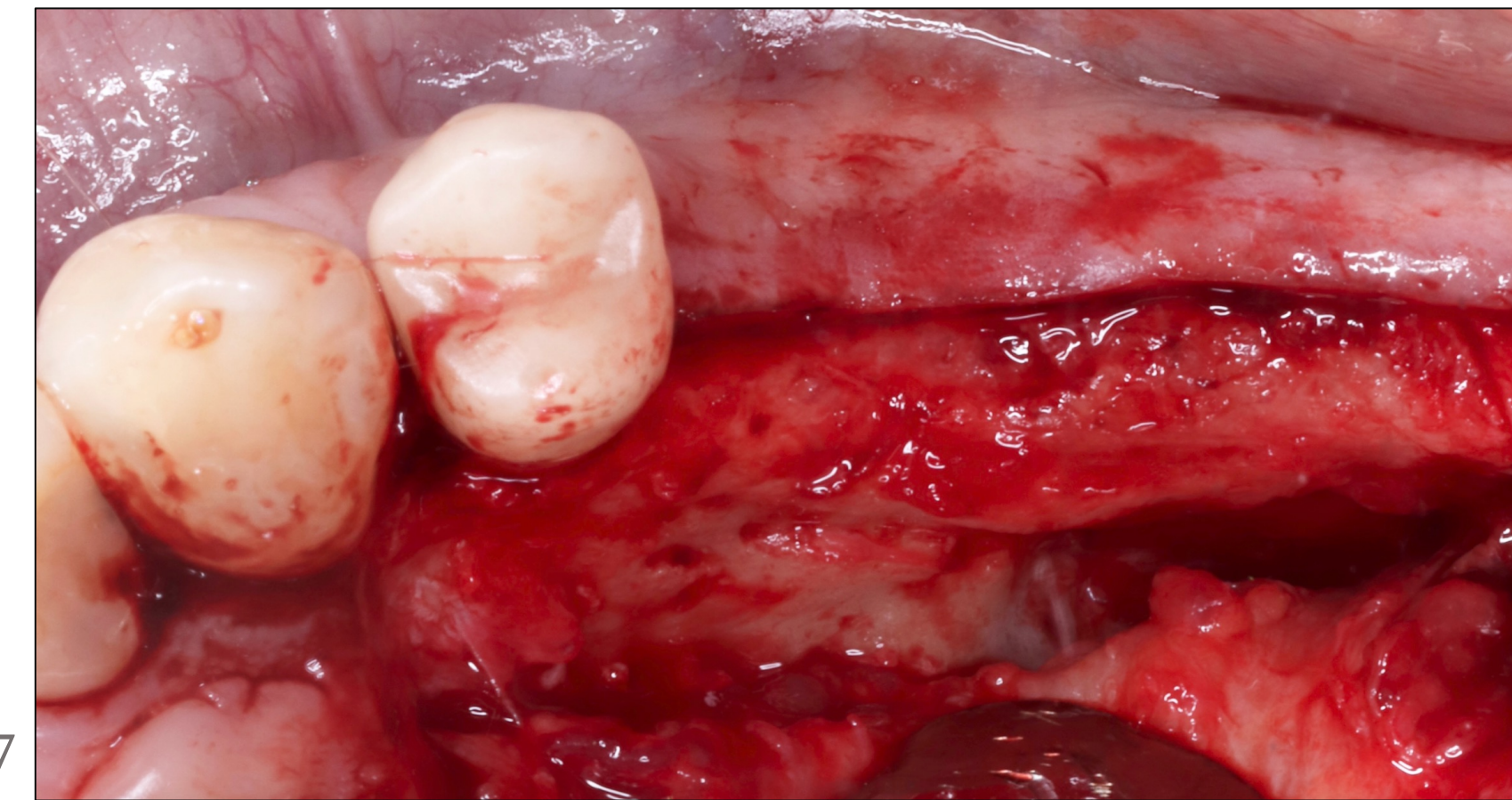


Fig. 7

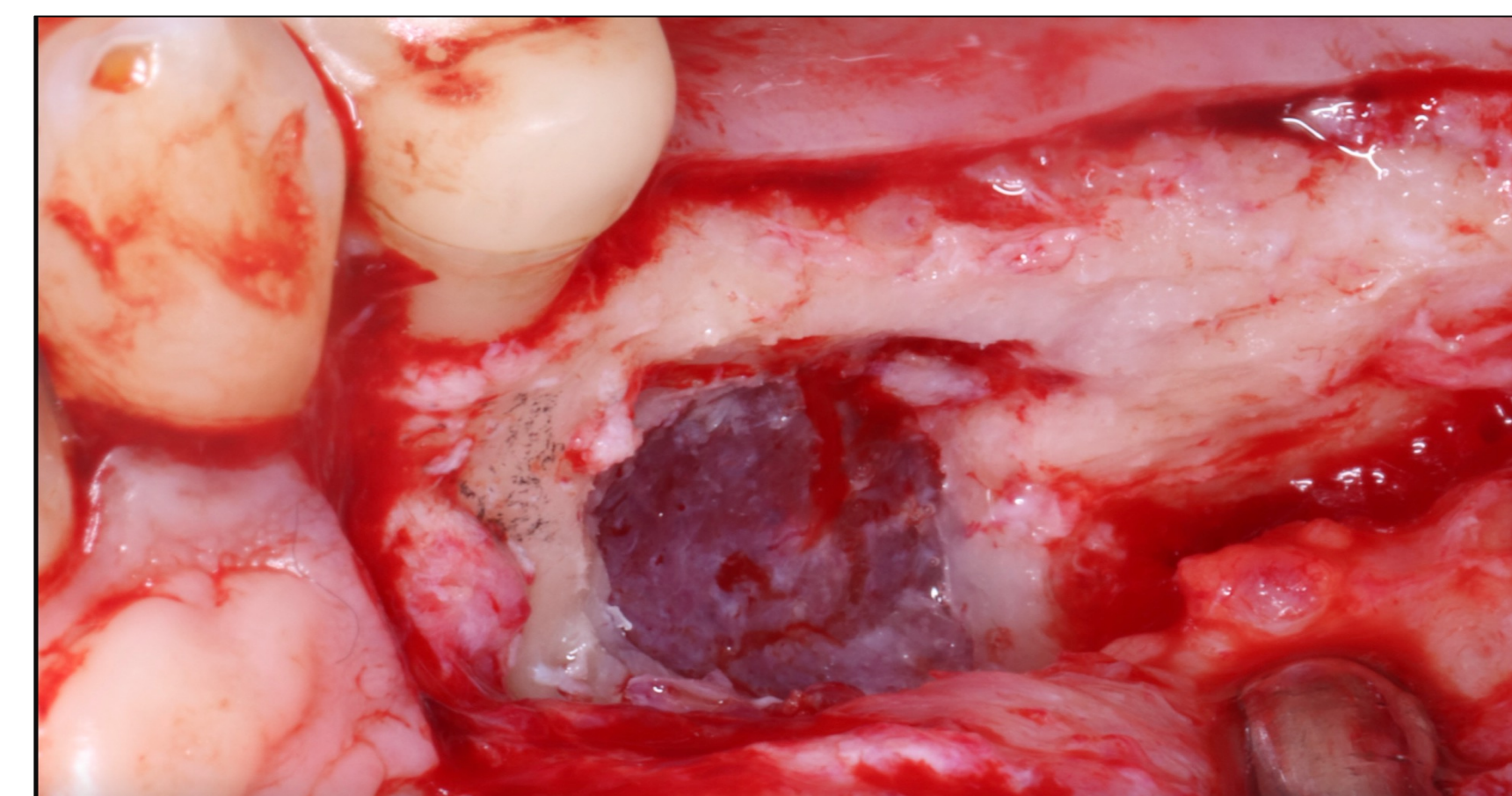


Fig. 8

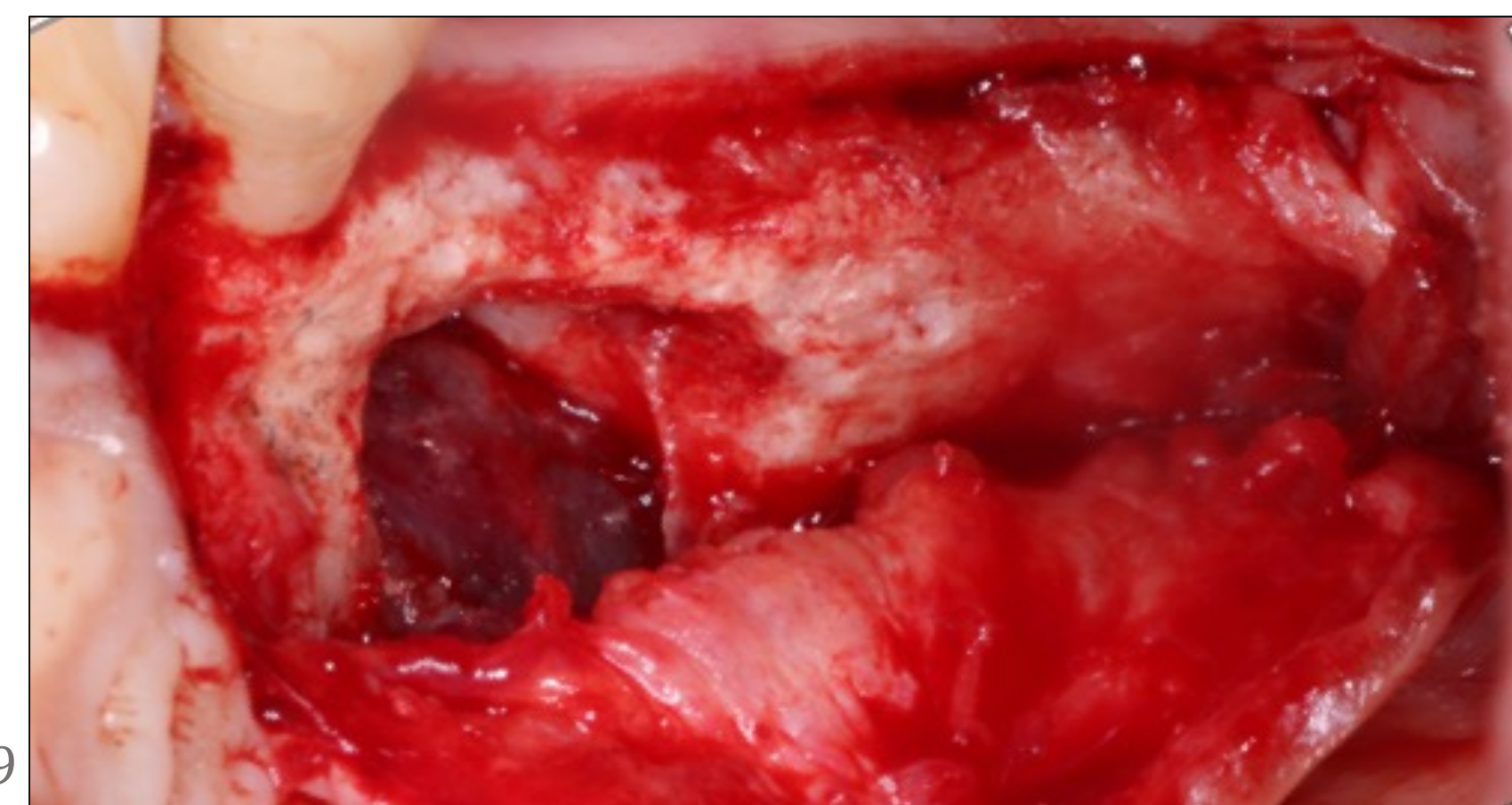


Fig. 9

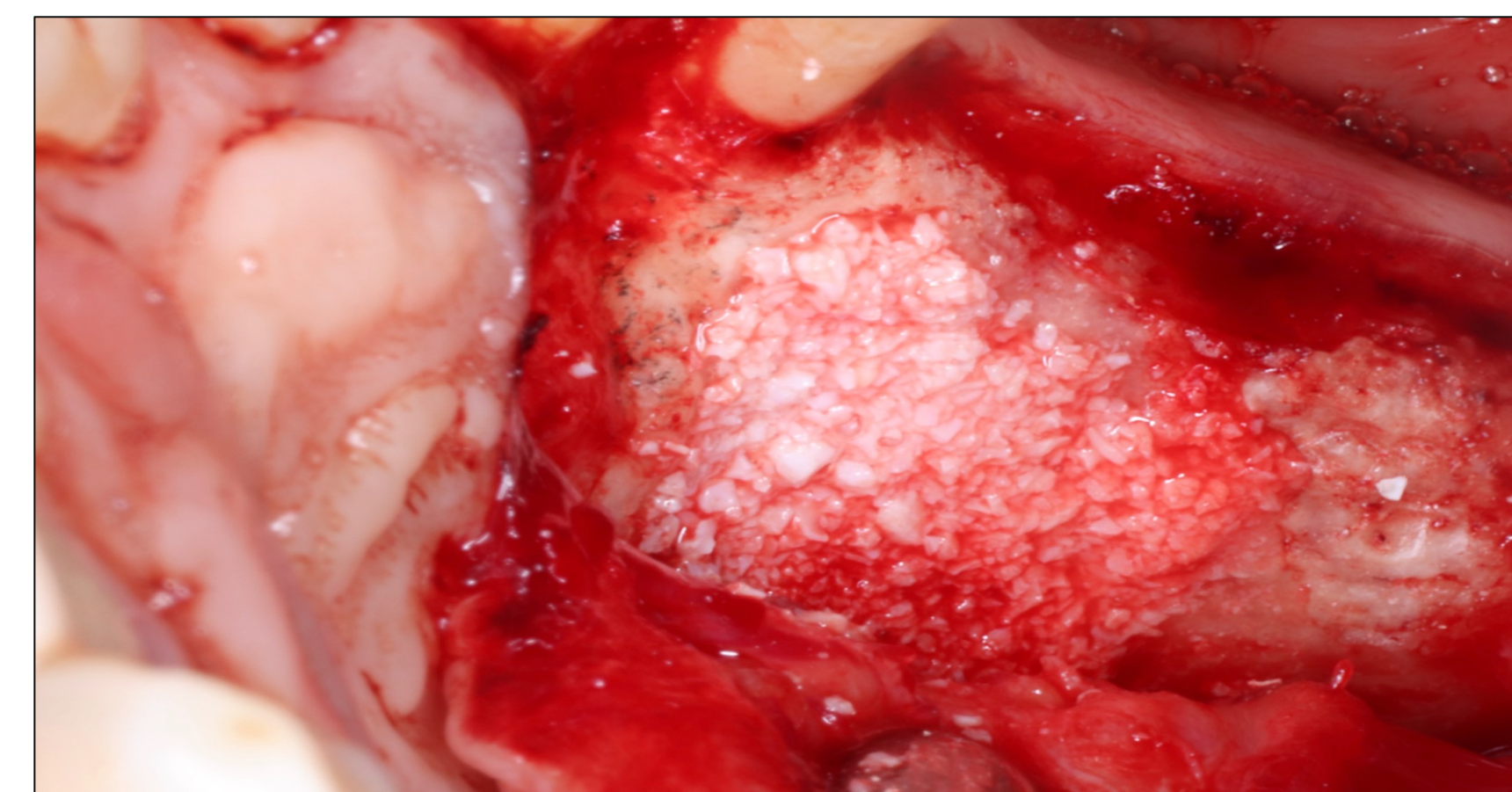


Fig. 10a

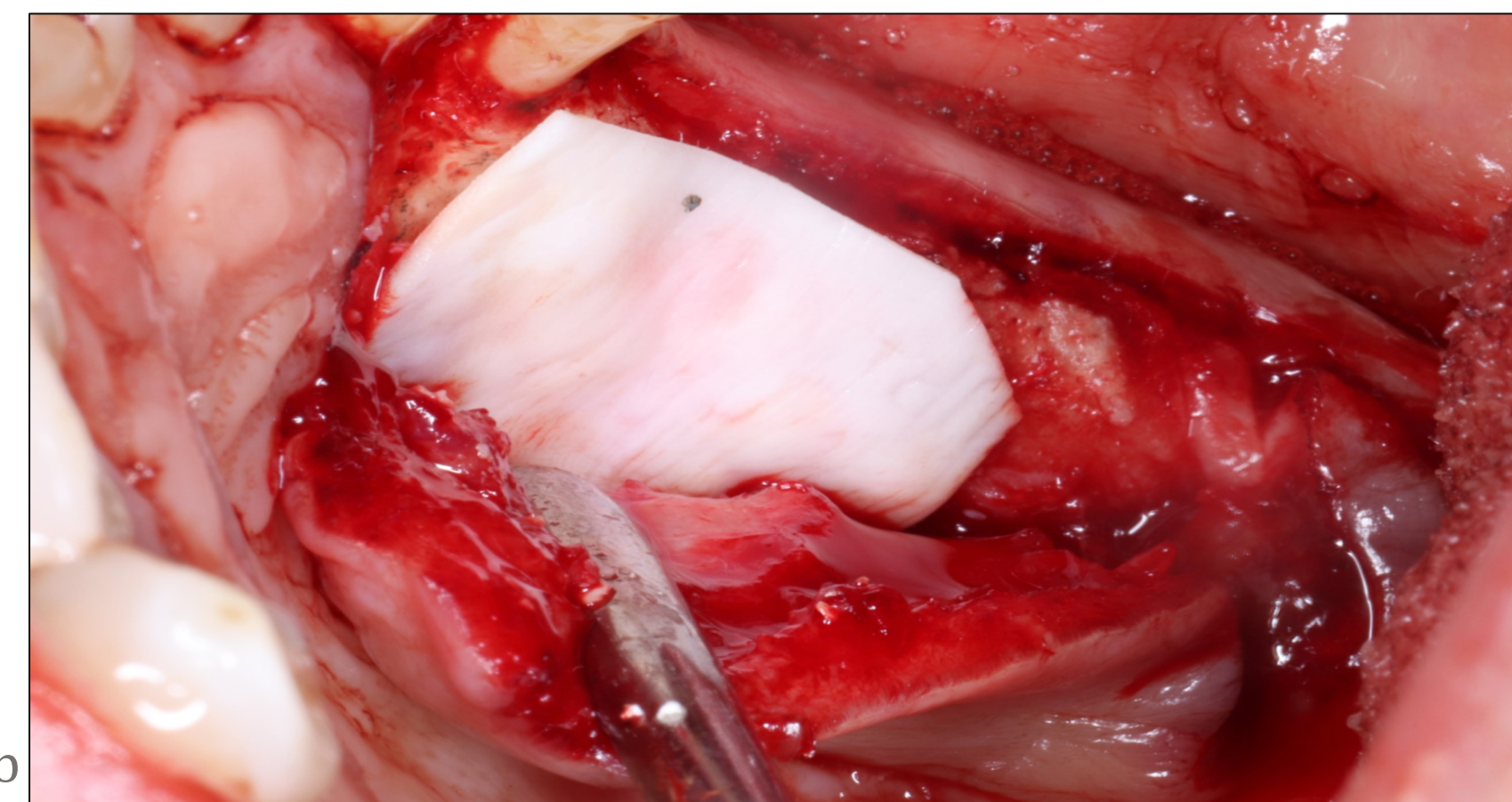


Fig. 10b

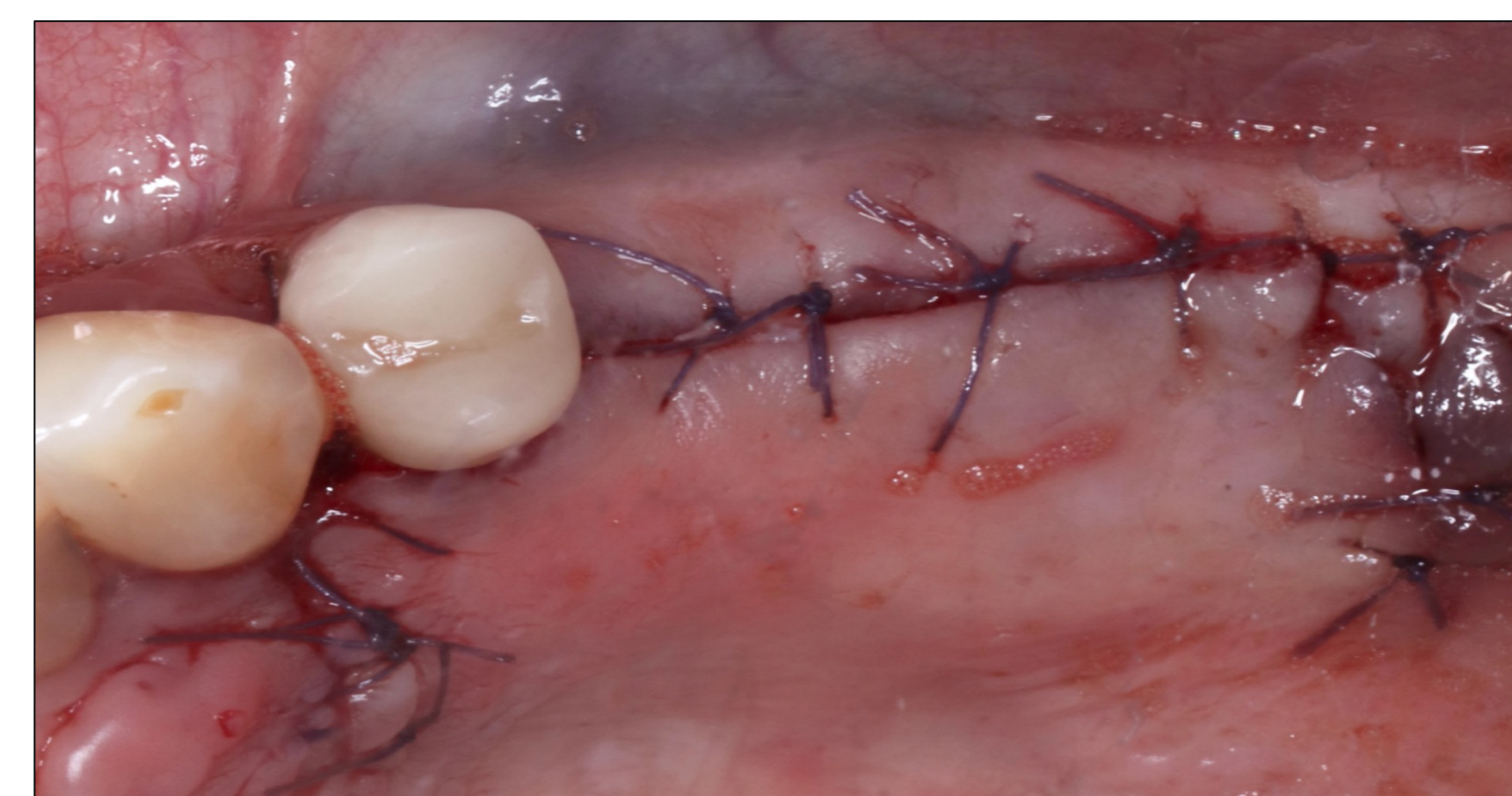


Fig. 11



Fig. 12

## SURGICAL PROCEDURE

Following administration of profound anesthesia, a mid-crestal incision was made from the distal tooth to the area of the second molar (Fig. 6). A short vertical incision was made on the distal and the mid-crestal incision extended in the palatal intrasulcular area anteriorly two teeth. All full thickness flap was reflected to the junction of the alveolus and the horizontal palatal vault (Fig 7).

Utilizing the NSK VarioSurg piezoelectric device, a 7mm x 7mm palatal window was created via osteoplasty, exposing an intact Schneiderian membrane (Fig. 8). During this procedure, the palato-nasal recess was completely eliminated. The Schneiderian membrane was then elevated without perforation after detaching it from the sinus floor and the adjacent residual incorporated graft (Fig. 9).

The sinus was grafted with 1.5 grams of small particle Bio-Oss which was then covered with a Bio-Gide membrane (Fig 10a,b). The flap was closed utilizing interrupted suturing with 4-0 Vicryl sutures, and patient was dismissed with his partial denture immediately placed after the surgical procedure (Fig. 11).

Patient was given appropriate analgesic and antibiotics to cope with the post-operative healing.

## RESULTS

Early postoperative communication with the patient reported a slight nosebleed the first day but only mild postoperative discomfort compared to his previous procedure utilizing the lateral window approach. Patient also reported no problem wearing his partial denture.

A postoperative CT-scan taken 2 weeks post-operative revealed a complete fill of the new graft in 3 dimensions (Fig. 12a,b). The free-floating graft aforementioned was left intact as the patient remained asymptomatic for one year following his initial surgery, and removal of this graft would have required additional surgery with expected disruption of the Schneiderian membrane.

Overall, this case report demonstrated clinical conditions that justified the utilization of a palatal approach for maxillary sinus elevation, and that a palatal approach may be an appropriate and successful alternative when a lateral window approach is compromised and complicated.

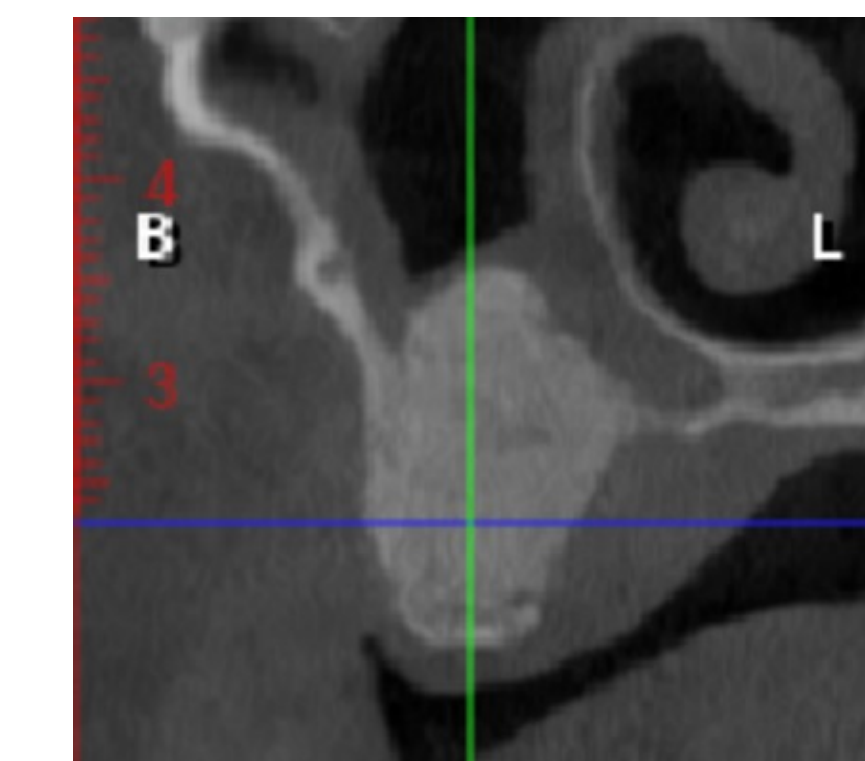


Fig. 12a

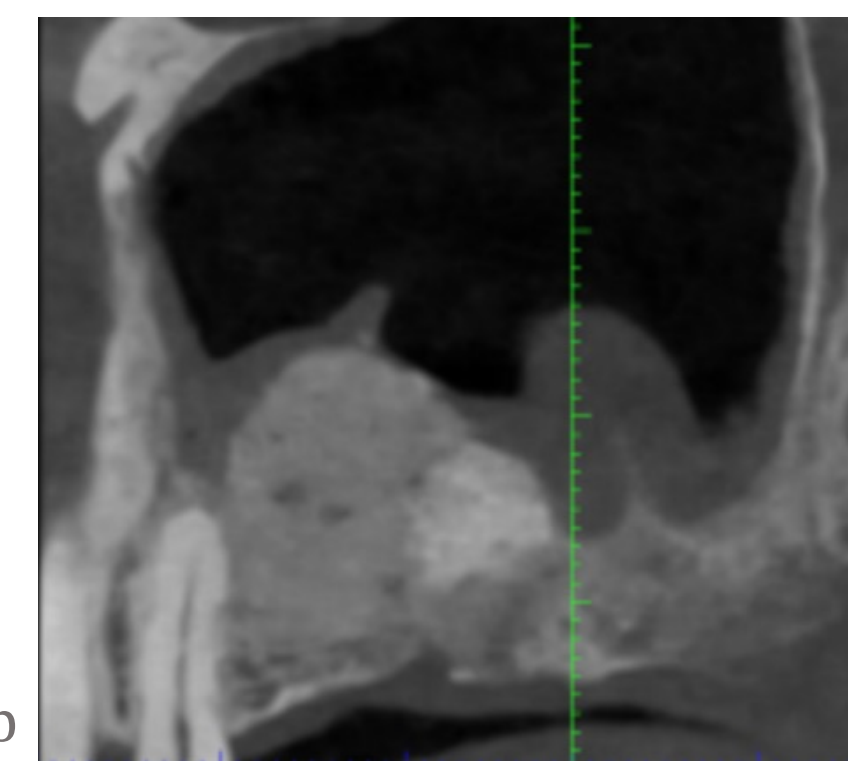


Fig. 12b

## REFERENCES

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2. Florio S, Suzuki T, Cho SC. The palatal window for treating an incompletely augmented maxillary sinus. Implant Dent. 2017; 26:328-331
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4. Chan HL, Monje A, Suarez F, Benavides E, Wang H-L. Palatonasal recess on medial wall of the maxillary sinus and clinical implications for sinus augmentation via lateral window approach. J Periodontol 2013;84;1087-1093