

## Introduction

Osteogenic distraction is a surgical technique that consists in the separation of a bone surface into two vascularized parts that are gradually separated in a controlled manner using a device called distractor.<sup>1</sup> This technique is an alternative when the defect is very large making it difficult and unpredictable to use a conventional bone graft to solve it.<sup>2</sup> The aim of this clinical poster is to describe a case where a patient with bilateral cleft was subjected to this therapeutic approach.

## Clinical case

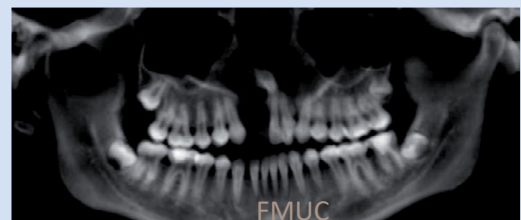


Fig. 1 – X-ray before distraction.



Fig. 2-5 – Intra oral photos before distractor.

A 21 years old female patient, came to the Institute of Orthodontics in the Faculty of Medicine of the University of Coimbra, looking for orthodontic treatment for correction of the malocclusion and reduction of the bilateral cleft palate. Cephalometric analysis showed that the patient was skeletal Class I with retrusion of both the maxilla and mandible. The treatment plan consisted on the placement of fixed appliances with Roth 0,018 prescription and an intraoral bone anchored distractor (“Liou” KLS Martin Group<sup>®</sup>). This device was only placed after levelling of the upper arch, which was finished in a 0,016 x 22 SS archwire

(Fig. 2-5). This wire was selected as it provided stability during activation of the distractor and allowed better sliding of the teeth (activation plan was: 0,9mm/day). During the surgery the bone division and distractor placement were performed, as well as, the testing of the device by opening and closing the activation screw (Fig. 6-9). After surgery, a 7-day latency period began, at the end of which, distraction initiated for two weeks (Fig. 11-14). On the third week, a consolidation period of 7 weeks starts (Fig. 15-18) and then the distractor is removed.

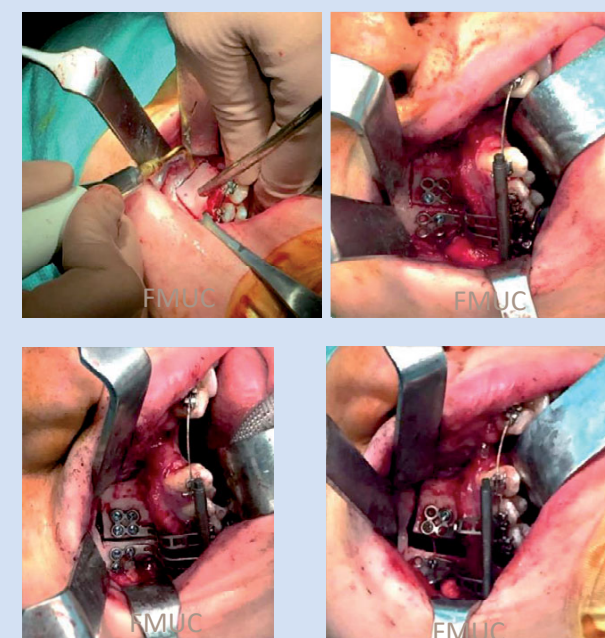


Fig. 6-9 – Placement of Distractor.

Initial

Latency period

Distraction period

Consolidation period

Remodeling period



Fig. 10 – X-ray after distraction.



Fig. 11-14 - 2ª Week after surgery. Distraction period.

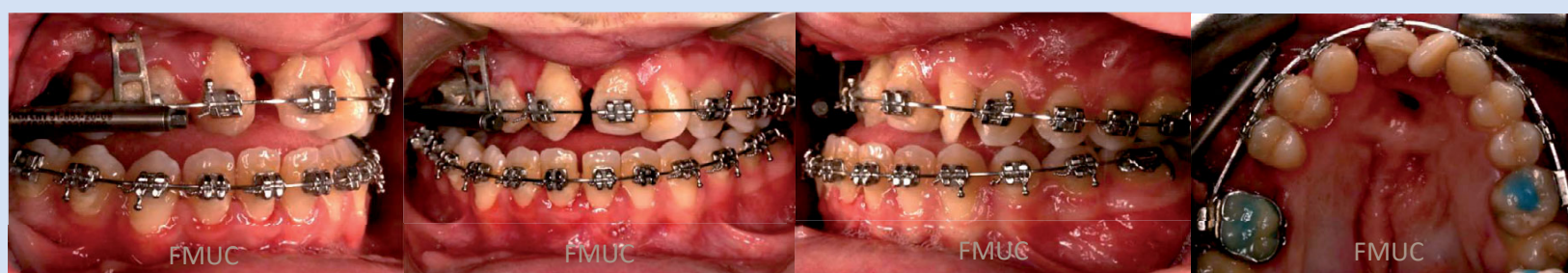


Fig. 15-18 - 4ª Week after distractor. With one week of consolidation period.

## Discussion

Through this therapy it was possible to achieve a good clinical result. Good gingival tissue volume and cleft reduction were obtained. The use of this technique is an efficient method in situations in which the bone and tissue defect is very extensive and where the predictability of a conventional bone graft is lower.<sup>3</sup> The progressive tissue distension has less risk of failure due to loss of blood perfusion.<sup>4</sup> The osteogenic distraction allows a progressive formation of bone and the creation of an adequate tissue volume, leading to a better aesthetic outcome.<sup>5,6</sup> Another advantage is that when we do our secondary bone graft from the iliac crest, the bone quantity required is much less, which makes it more stable and more predictable. All of these provide a greater predictability and guarantee the success of a future rehabilitation.<sup>5,6</sup>

## Conclusion

Osteogenic distraction is an efficient technique for extensive cleft palate reduction, helping the closure of the cleft and allows the conclusion of the orthodontic treatment.

## Financing sources

None.