Reviewer’s report

Title: Three-dimensional quantitative assessment of palatal bone height for insertion of orthodontic implants - a retrospective CBCT study

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Reviewer: Ana Zilda Nazar Bergamo

Reviewer’s report:

Introduction

Adequate. I suggest an actualization of the literature.

Material and Methods

Accurate, detailed and well structured.

Results and Discussion:

The results pointed in "Highly significant interactions of the variable measurement" indicate that the palate (P1-P88) with the variable "gender" - F(9.88) = 2.976, p = 0.001 - as well as the variable "age group" - F(29.641) = 2.839, p < 0.001 - were found. This means that the significant differences in palatal bone height between different measurement point across the palate (P1-P88) differed for men and women as well as for individual age groups, i.e. gender and age have a significant impact on the extent of differences between measurement points." These founds make sense according to the anatomical and bone characteristics attributed to the women and men. But there is no sense according to the arguments in the discussion: "In the present study, we found significant gender variation in palatal bone height as well as significant differences among different age groups. These observations make sense, when considering the differing rate of physiological growth in puberty [5]. Boys have their pubertal growth peak at about 14 years of age, whereas girls reach puberty 1.5-2 years earlier [20]. Thus, age group A was defined to cover the time before the pubertal growth spurt in either boys or girls (8-12 years), whereas group B represented the maximum growth rate at 13-16 years and group C represent the age, when a decline of the growth occurs at 17-22 years. An additional group D was chosen as growth often continues beyond the age of 20 [11]"

The pubertal growth spurt influences this aspect? Or the palatine suture closure?

Then I see that this is a great study, well done. The sample size is consistent, with the largest number of sites analyzed, but no new information was added. There are many studies in the literature that concluded the same:
The literature published over than 500 papers about miniscrew. Over 300 about palatal miniscrew. The most of them describe that the palatal site is the most stable. The success rate is more than 90%.

"The midpalatal area had the lowest failure rate (1.3%) offering an excellent location for OMI insertion. This might be attributed to the thinness of the soft tissues and the quality of the cortical bone in this area, altogether with the direct ease of insertion [25, 26]. The failure rate for the paramedian OMIs was 4.8% falling just behind the midpalatal area and demonstrating another excellent alternative for OMI insertion. The parapalatal area is utilised by inserting OMIs in the lateral borders of the palate. This insertion site has been widely used for intrusion purposes of the maxillary posterior teeth [27, 28]. The failure rate for the parapalatal area was 5.5% acting as a good alternative palatal insertion site."Mohammed et al 2018.

Maike-Holm et al 2016 in a similar trial study describe the same results of yours.

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