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**USE OF TOMOGRAPHIC IMAGES IN THE DIFFERENTIAL DIAGNOSIS AND PLANNING IN THE MANAGEMENT OF AN IMPACTED CANINE**

## Introduction

Dental impaction is a clinical situation of great interest to orthodontists, as they need a consistent orthodontic and surgical treatment plan. Among the teeth, the upper canines are among the most affected.[1] An impacted canine can induce complex physiological and chemical processes and, consequently, will cause damage to adjacent dental units causing resorption in its roots, the incisors are the most affected units.[2] The computed tomography is a diagnostic tool that shows the presence or absence and the size of the canine follicle, the axial inclination of its long axis, the buccal or palatal position, the amount of bone that covers the tooth in question, and the resorption of neighboring teeth.[3]

**Clinical case report**

A 14-year-old male patient has reported that the "permanent tooth had not appeared" and complaining of interdental spaces. The presence of the right maxillary canine was observed (**Figure 1**). Orthodontic diagnostic exams were requested (**Figure 2**) and after viewing the impacted and mesio angulated right permanent maxillary canine. A cone-beam computed tomography (**Figure 3**) was requested for in-depth analysis. As it was possible to observe the impacted canine, it was close to the nasal cavity and maxillary sinus, in an oblique position, with a crown per vestibular and with the presence of an increased pericoronary cap.



**Figure 1** - Initial intraoral photos
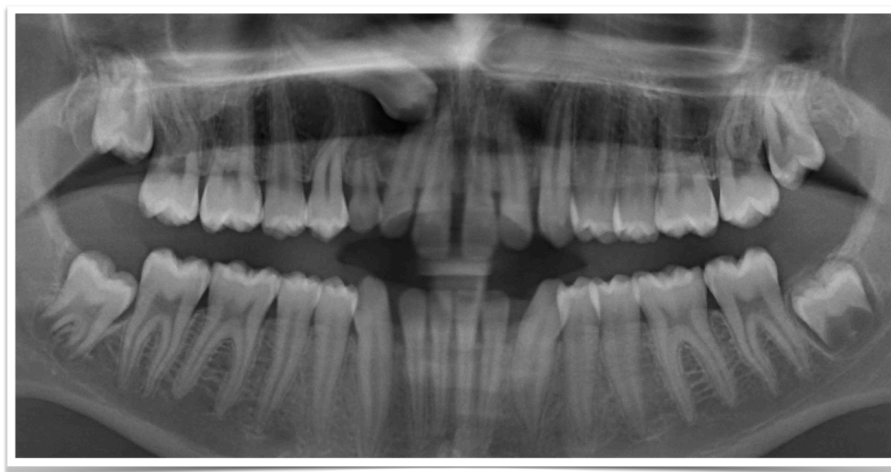


**Figure 2**– Panoramic x-ray images
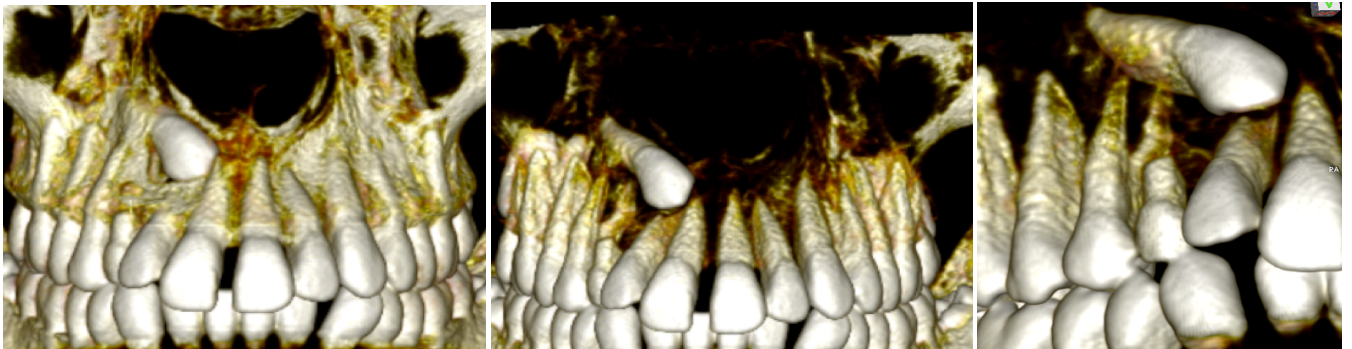
**Figure 3** - Volumetric reconstructions of cone beam tomography

On the information obtained in the tests was carried out integrated planning and multidisciplinary of traction surgery. (**Figure 4**) Configuring it as an important diagnostic tool, which made it possible for the team to interact and institute a safe treatment since surgery regarding the direction of the traction mechanics (**Figure 5**).


**Figure 4** - Surgical access and bonding traction enhancement


**Figure 5** - Evolution of orthodontic traction

Observed in the panoramic x-ray of control, the correct positioning of the permanent maxillary canine right with its neighbors and parallelism of the roots with the closed dental spaces (**Figure 6**), and the orthodontic finishing was planned manner (**Figure 7**).



**Figure 6** – Panoramic control X-ray



**Figure 7** – Final intraoral photographs

**Conclusion**

Impacted teeth are a great challenge for orthodontists, mainly due to the limitation of their visualization. Cone-beam tomography is an important diagnostic tool, allowing consistent orthodontic and surgical biomechanics planning, for cases of impacted canines and teeth. In the reported clinical

case, it was possible for the multidisciplinary team to elaborate safe planning since the surgery and to conduct the traction biomechanics to re-establish the patient's aesthetics and masticatory function.

**References:**

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