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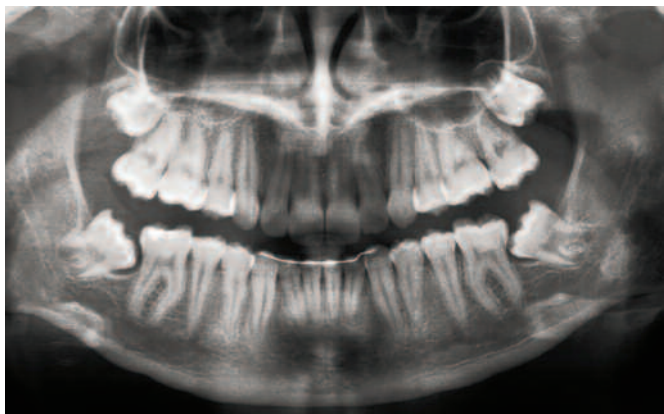
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# Preface

This book addresses the problems associated with impacted teeth in children and adolescents from both orthodontic and surgical perspectives. Emphasis is placed on a prophylactic approach to reduce or, when possible, eliminate the need for surgery. However, there are cases for which surgery is unavoidable; therefore, this text describes strategies for designing intervention in specific anatomic situations. Above all, its goal is to help orthodontists plan treatment to meet the needs of their patients.

Many individuals have contributed to the successful completion of this volume. My collaboration with Professor of orthodontics François Guyomard, on *Chirurgie parodontale orthodontique* (Edition CdP, 1999), allowed me to adapt the principles of mucogingival surgery for use in orthodontic surgery. Professor Frans P. G. M. van der Linden kindly gave his permission to use images from his atlas, *Development of the Human Dentition* (Harper & Row, 1976), to illustrate specific problems that children may endure during tooth eruption. The knowledge I gained in preparing to publish a number of articles with Danielle Pajoni, an authority in computerized tomography, proved invaluable in helping me to visualize the exact anatomic locations of ectopic teeth. Finally, I have worked closely over the last few years with Xavier Korbendau, who has contributed his clinical skills to the surgical treatment of a number of patients with complex problems.

*Jean-Marie Korbendau, DDS, MS*



**Fig 4-9a** After extraction of the second molars, both mandibular third molars of this 18-year-old patient became impacted.



**Fig 4-9b** After 3.5 months, orthodontic treatment freed the crowns of the third molars and allowed them to erupt, although they still need to upright.

## Palatal approach

Surgeons use palatal flaps, which are always replaced, to remove most supernumerary teeth and odontomas found in the anterior maxilla and to provide an eruption path for impacted canines confined within the maxilla.

Impacted maxillary canines are the only permanent teeth that can be brought into the arch through either a palatal or a buccal route, depending on their location (see chapters 5 and 6).

### *Preparing the palatal flap*

An incision is made following the neck of the tooth within the gingival sulcus and, if the primary tooth is absent, continuing across the middle of the gingival crest. The incision is then extended across the arch to the region of the other canine. A no. 12 blade is useful for making interdental incisions to free the crests of the papillae (Figs 4-12a to 4-12c).

The palatal mucosa is disengaged by lifting the papillary gingiva as well as the median papilla, if necessary, to uncover the orifice of the nasopalatine canal, a process that poses no risk to the neurovascular bundle. Next, the mucosa is carefully detached from front to back with a periosteal elevator, keeping the instrument in constant contact with the bone. The extent of the uncovering depends on the tooth's position; the closer the impacted tooth lies to the midline of the intermaxillary suture, the greater the area that will be uncovered (Fig 4-13a).

### *Exposing the crown*

If the impacted canine is to be extracted, the crown is exposed to its neck for sectioning (Fig 4-13b). The root can then be removed by luxation without much affront to the enveloping bone. A conservative surgical-orthodontic treatment plan for the impacted tooth will provide for the eventual eruption of the tooth, although it begins with the same operative protocol. The treatment plan must include four essential elements to ensure a successful outcome.

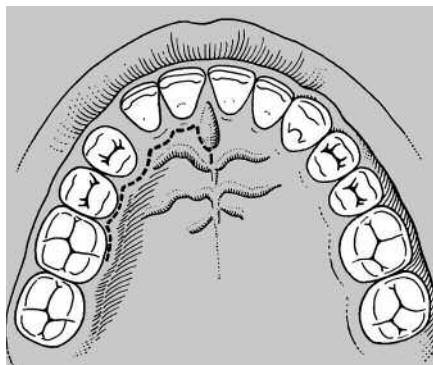
1. Preparation of the bony window must commence at a safe distance from the neck of the incisor. While surgeons should also follow this principle when the canine is to be extracted, it may be impossible to do so when the impacted canine lies superficially and is separated from the incisors by only a thin bridge of bone (Fig 4-14a).



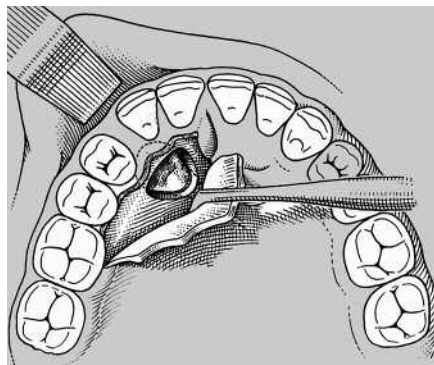
**Fig 4-10** Replaced flap. A mucoperiosteal flap was retracted so that an attachment could be bonded to the crown of the maxillary right canine. A twisted steel ligature was tied to the attachment and left lying against the bone. The flap was returned to its original position and sutured around the exposed loop of the ligature.



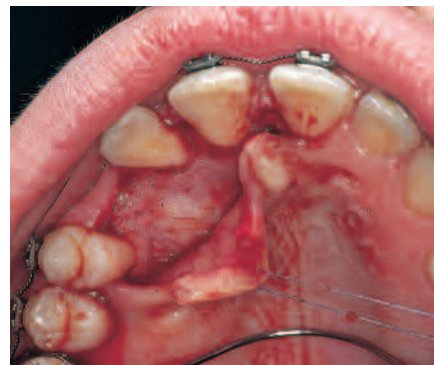
**Fig 4-11** Displaced flap. This partial-thickness flap was raised from the gingival crest. It was then displaced apically and mesially so that a portion of the blocked-out tooth's crown, with its bonded steel button and attached ligature, remained exposed to the oral cavity.



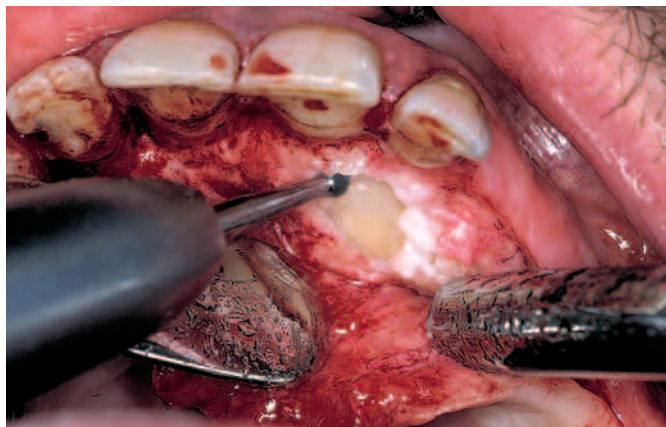
**Fig 4-12a** Dotted line showing design of potential incision. It will be made at some distance from the marginal gingiva through the mucoperiosteum overlying the impacted maxillary right canine.



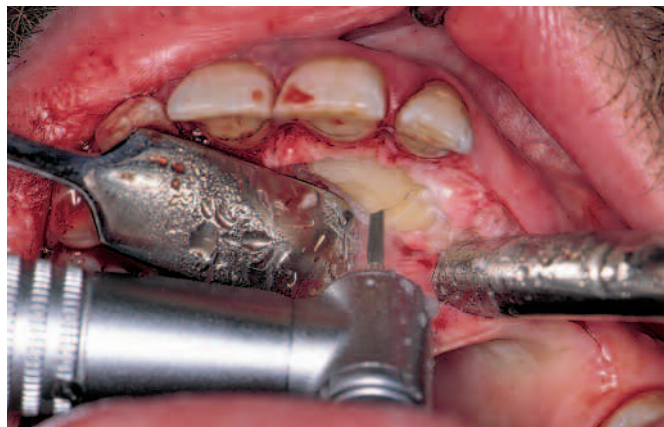
**Fig 4-12b** This type of incision makes uncovering the impacted tooth's crown more difficult because a narrow band of marginal and papillary gingiva is isolated from its vascular support, but must be left in place.



**Fig 4-12c** Sulcular incision to raise the palatal mucosa and, if necessary, the median papilla. The flap will be kept in place by sutures attached to other teeth in the dental arch.



**Fig 4-13a** Mucoperiosteal flap retracted across the midline to extract the palatally impacted maxillary left canine in a 50-year-old man.



**Fig 4-13b** Sectioning the impacted tooth preserved the bone as well as the osseous border of the other teeth.