

# Report of a Case of Tooth Avulsion in to Oral Soft Tissue of the Year 1970 Indirectly Demonstrating the Progress of Dental Traumatology During the Last 45 Years

Hans Peter Philipsen<sup>1</sup>, Pathawee Khongkhuntian<sup>2</sup>, Peter A. Reichart<sup>3</sup>

<sup>1</sup>Holte, Denmark

<sup>2</sup>Center of Excellence for Implantology, Faculty of Dentistry, Chiang Mai University, Chiang Mai

<sup>3</sup>Department of Oral Medicine, Dental Radiology and Oral Surgery, CC03, Charité Universitätsmedizin Berlin, Germany, Assmannshauser Str. 4-6, 14197 Berlin

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## Abstract

The present report dates back to the year 1970. It documents a case of avulsion of a permanent left upper lateral incisor and a left upper second premolar in a 46-year-old male who was the victim of interpersonal gang violence. Avulsion of teeth into oral soft tissue is an uncommon dental trauma. The present case reveals that the patient had no knowledge of possible treatment options since he did not seek for medical or dental consultation. He developed an abscess of the cheek 8 weeks after the attack.

In contrast to the year 1970 the general public 45 years later is much more aware of medical and dental treatment possibilities even that

of dental trauma. Diagnostic improvements in maxillo—facial radiography using panoramic radiography, cone beam CT and CT allow for more precise analysis of local dento-alveolar trauma and location of displaced teeth. Also intensive research based on large series of cases of dental trauma evidence-based recommendations are now available for treatment of the different variations of dental trauma. Outcome of replantation of avulsed teeth have resulted in more reliable prognosis of dental trauma. Abscess formation of an avulsed tooth into oral soft tissues seems rather unlikely these days.

**Keywords:** Avulsion, dental trauma

Corresponding Author:

ปฐวี คงขุนเทียน

รองศาสตราจารย์ ดร.ศูนย์ความเป็นเลิศทางทันตกรรมรากเทียม  
คณะทันตแพทยศาสตร์ มหาวิทยาลัยเชียงใหม่

**Pathawee Khongkhuntien**

Associate Professor., Dr. Center of Excellence for Dental  
Implantology, Faculty of Dentistry, Chiang Mai University,  
Chiang Mai 50200, Thailand  
E-mail: pathaweek@gmail.com

## Introduction

Tooth avulsion is the complete displacement of a tooth from its socket due to accidental or non-accidental injury. Avulsion of permanent teeth is seen in 0.5-3% of all dental injuries<sup>(1,2)</sup>, and is one of the most serious dental injuries. The prognosis is very much dependent on the actions taken at the place of accident and promptly after the avulsion<sup>(3)</sup>, and includes factors like: age and general health condition of the patient, periodontal damage, intact alveolar socket, extra-alveolar period as well as storage medium and lastly stage of root development. If the avulsed tooth can be retrieved, replantation is in most situations the treatment of choice, but cannot always be carried out immediately.

This paper reports a case of avulsion of two permanent teeth in an adult male who was a victim of physical assault by a gang of aggressive young men. The case was retrieved from the files of one of the authors (HPP) and dates back to the year 1970. Replantation was in this case not known to be an issue by the victim.

## Case report

A 46-year-old male patient presented with a subcutaneous abscess of the left cheek which had developed close to the left angle of the mouth (Fig. 1). The patient reported that 8 weeks earlier he was attacked from behind at about 11 p.m. returning to his home following a visit to a local pub. The attackers were a gang of three aggressive young men who inflicted numerous punches, slaps and kicks to the face and other parts of the body resulting in bleeding from the nose and mouth. The victim noticed that an upper left front tooth was missing following the assault. Upon questioning the patient stated that he has not been aware of a possible replantation of an avulsed tooth. Therefore, he left the soiled avulsed

left lateral upper incisor behind on the dirty road surface. At this post-traumatic moment, the fate of the avulsed left upper second premolar was unknown to the patient. The patient returned home groggy and agitated following the rough assault and did not immediately seek medical attention due to the traumatic circumstances around the injury's nature. Nor did he report complaints to the police. The posttraumatic swelling of the facial soft tissues gradually subsided but a rather hard and tender lump persisted in the soft tissue of the left cheek. A week before presentation a tender, reddish swelling of the skin appeared just behind the left angle of the mouth and through two or three small openings the patient could "squeeze" out what the patient thought were "clots of pus" which prompted him to seek medical advice.

Extraoral examination showed a subcutaneous abscess located to the left cheek just behind the left corner of the mouth with three small drops of pus oozing out from tiny fistulae of the abscess (Fig. 1). Next to the abscess was a red, slightly elevated skin area, tender on palpation and possibly sign of the developing abscess. Intraorally, on the buccal mucosa opposite the premolar area was an irregular scar with a mucosal hyperplasia as seen after dilaceration. Bidigital palpation of the left cheek gave the feeling of a rather fibrous and slightly tender mass

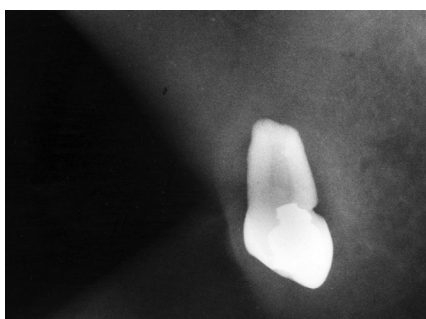


**Figure 1.** On the left cheek close to the angle of the mouth a swelling and fistulae with pus are noted.

ca. 1.5 cm in diameter located to the center of the soft tissue of the cheek. The loss of teeth 21 and 25 could be confirmed.

A radiograph of the soft tissue in the area of the left cheek behind the left angle of the mouth (Fig. 2) disclosed a permanent second premolar carrying an amalgam filling and a distinct root canal, suggestive of the avulsed – and displaced - left upper second premolar.

Initial treatment consisted of surgical incision of the abscess. In local infiltration anaesthesia incision was made intraorally through the mucosal hyperplasia opposite the left premolar region. With a Lister forceps an opening was made to the abscess cavity which was surrounded by a thick fibrous capsule. In the middle of the abscess cavity and “swimming” in a lake of pus the avulsed tooth 25 was detected and removed. The cavity was flushed with physiological sodium chloride solution and the incision was partly closed using a kofferdam drainage. In addition, high dosage of oral penicillin treatment was continued for 5 more days and at control 4 days later, the condition was satisfying and yet another month later local oral condition was perfect with no fistulae present on the skin.



**Figure 2.** The radiograph of the cheek reveals the shape of a premolar the crown of which shows a radiopaque area representative of an amalgam filling.

## Discussion

Traumatic dental injuries are often associated with soft tissue injuries. It is therefore important to thoroughly examine mucosal lacerations and wounds in cases of teeth avulsion. Tooth fragments or an entire often single-rooted tooth may be embedded in oral soft tissue and may go unnoticed in the presence of urgent situations during and after injury. Replantation of an avulsed tooth is considered the best aesthetic and functional solution<sup>(3)</sup>. Replantation of an avulsed tooth was, however, not an option in the case presented here, as the patient was unaware of the possibility of replanting a tooth. Displacement of teeth into surrounding tissues is an uncommon finding. There are, however, a few case reports in the literature describing displacement of teeth or fragments of teeth into the infratemporal fossa<sup>(4)</sup>, submandibular space<sup>(5)</sup>, tongue<sup>(6-8)</sup>, chin<sup>(9)</sup>, lip<sup>(10,11)</sup> and cheek<sup>(12)</sup>. One of the earliest case of an avulsed tooth displaced to the soft tissue of the cheek was the one described by Rowe and Killey in 1968<sup>(13)</sup>. They reported a case of an avulsed upper premolar displaced to the right cheek. It was disclosed only 15 months following the trauma showing a fistula to the skin close to the right angle of the mouth, a case very similar to the case presented here.

The incorporation of an avulsed tooth into oral soft tissue areas will during wound healing increase the risk of infection and triggers a foreign body reaction and formation of fibrous scar tissue that will encapsulate the foreign body. In the case presented, fibrous tissue had formed around the avulsed premolar embedded in a pool of pus. If – as in the present case - the foreign body is not recognized by the patient, months later an abscess may be formed and pus may find its way to the skin surface of the cheek as demonstrated in the present case. Considering the advancement of dental traumatology since 1970 numerous factors have to be mentioned.

## Factors concerning patients

Generally, patients nowadays are much better informed about their own medical and dental problems than 45 years ago. Parents with children who had an accident sustaining mouth and teeth injuries will know right away whom to consult. Further, the parents are aware of the fact that time outside the oral milieu plays a major role in saving an avulsed tooth. Also, it is widely known to keep an avulsed tooth moist either in the patients mouth or in a container with a suitable storage medium, like isotonic liquid which is commercially available.

## Factors concerning diagnostics and treatment of dental trauma including avulsed teeth

Advancement of radiologic techniques, particularly CBCT make localisation of e.g. avulsed teeth or fragments of foreign bodies in soft tissues (metal, glass a. o.) much more precise.

Controlled studies of dental trauma have resulted in the possibility of developing treatment recommendations (evidence based) for dental trauma cases during the last 45 years. Especially, endodontic treatment has undergone considerable progress with the use of new materials and techniques. Also, the use of endodontic microscopes have resulted in much improved prognosis of root canal fillings compared to former times.

## Conclusion

This “historic” case of a dental trauma case illustrates - in an indirect way - the progress of diagnostics and treatment of tooth avulsion and dental trauma during the last 45 years.

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เปิดบริการ



## ศูนย์เอกซเรย์ทางทันตกรรม

โรงพยาบาลทันตกรรม คณะทันตแพทยศาสตร์ มหาวิทยาลัยเชียงใหม่

ให้บริการถ่ายภาพรังสี ทางทันตกรรม (เอกซเรย์) แก่ผู้ป่วยทั้งใน-นอกเวลาราชการ

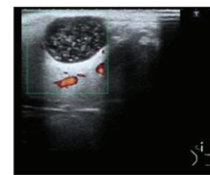
▶ บริการถ่ายภาพรังสีทางทันตกรรมทั่วไป (ชนิดภาพรังสีนอกช่องปาก)  
ด้วยระบบดิจิทัล (Digital Radiograph)



Panoramic



▶ การตรวจด้วยอัลตราซาวด์ (บริเวณขากรรไกร-ใบหน้า)

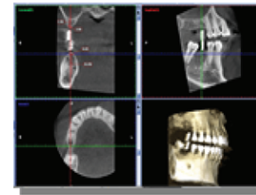


Ultrasound



Cephalometric

▶ ภาพถ่ายรังสีโคนบีมซีที (Cone beam CT : CBCT) ด้วยเครื่อง  
ถ่ายภาพซึ่งเป็นเทคโนโลยีอันทันสมัย สามารถแสดงภาพของฟัน  
กระดูกขากรรไกรและใบหน้า ได้ในหลายระนาบและสร้างเป็นภาพ  
สามมิติ พร้อมรายงานผลอ่านภาพโดยทันตแพทย์เฉพาะทาง



การวางแผนเพื่อฝังรากเทียม

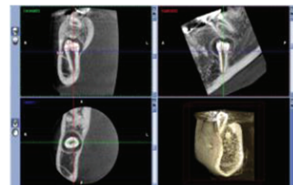


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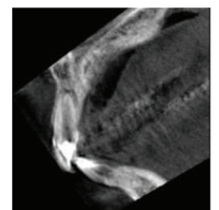
### เปิดให้บริการ

จันทร์-ศุกร์ : เวลา 09.00 - 20.00 น.

เสาร์-อาทิตย์ : เวลา 09.00 - 16.00 น.



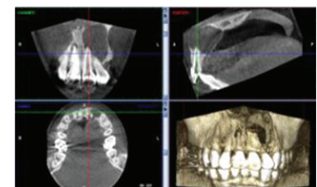
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ศูนย์เอกซเรย์ทางทันตกรรม โรงพยาบาลทันตกรรม คณะทันตแพทยศาสตร์ ม.ช.  
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โทรศัพท์ : 053-941-605 E-Mail address : dentxraycenter@gmail.com



การตรวจรอยโรคของฟันและกระดูก

ศูนย์เอกซเรย์ทางทันตกรรมเป็นสถานพยาบาลของทางราชการ สามารถเบิกค่ารักษาพยาบาลจากทาง  
ราชการได้ตามระเบียบกระทรวงการคลัง