Journal of Dental Sciences 21 (2026) 640–642

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.e-jds.com

Correspondence

Rapid response model for mandibular fractures by community clinic dentists under the National Health Insurance in Taiwan

KEYWORDS
Facial trauma;
Mandibular fracture;
National Health Insurance;
Community dentists;
Referral

Among the patients with facial bone fractures presenting to the emergency department, the mandible is one of the most common fracture sites. The most common causes of facial bone fractures are traumas, such as those from traffic accidents, physical altercations, workplace accidents, falls, and contact sports. Due to the complex anatomy and function of the mandible, the surgical intervention is relatively common for mandibular fractures. Teeth located along the fracture line can also complicate the wound, increasing the risk of contamination by oral flora.[1] Delayed treatment of mandibular fractures can lead to complications such as poor healing, infection, malocclusion, temporomandibular joint problems, and facial deformity. These complications can further affect the patients' chewing function, swallowing ability, speech clarity, and even facial appearance.[2,3]

In the past, there was relatively little discussion on the care model for facial bone fractures from the perspective of the medical system. This article reported on how a community dentist rapidly diagnosed a patient with the mandibular fracture by panoramic radiography, and arranged the patient for prompt surgical treatment through a referral system to avoid the sequelae of delayed treatment. It emphasized the role and importance of the community dentists in making the correct initial diagnosis of facial trauma and the timely proper arrangement of subsequent care for the patient.

The process of treatment of this facial trauma case from accidental onset to recovery is shown in Fig. 1A. A 71-year-old fully-conscious woman visited to a community dental clinic with the chief complaints of the left facial swelling, pain of her left posterior teeth, and difficulty in opening the mouth. She described that she fell in the bathroom last night and hit her chin against the sink. This patient was a resident near the dental clinic. The panoramic radiograph of her first visit to this dental clinic 2 years ago showed an intact mandible contour (Fig. 1B). In addition to significant facial injury, the panoramic radiograph obtained at this visit also revealed a significant displacement of the left mandibular ramus with an oblique bone fracture line from the distal area of the tooth 38 to the mandibular angle (Fig. 1C). The dentist confirmed no tooth fractures, provided initial care to the injured area, issued a referral, and informed the patient that a mandibular fracture had been confirmed and the surgical intervention was warranted as soon as possible. The patient was referred to the oral and maxillofacial surgery department of the nearest medical center at the same day. The hospital referral center

https://doi.org/10.1016/j.jds.2025.08.034

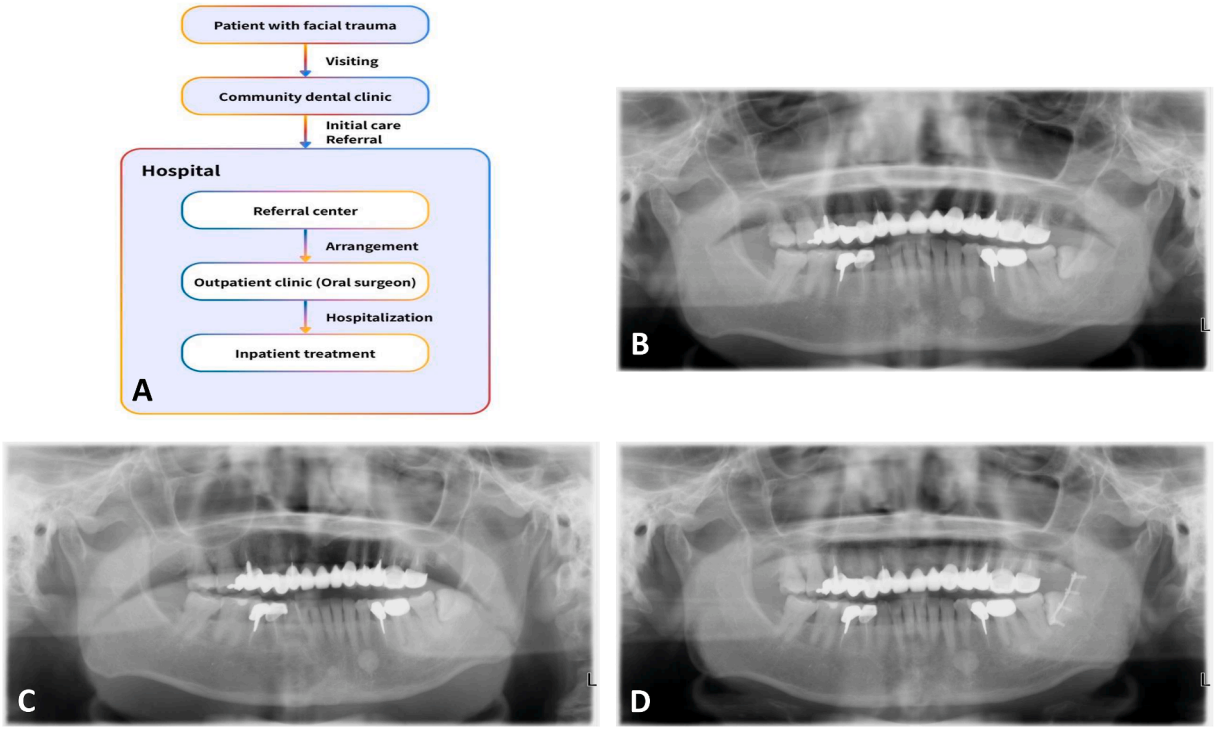

Figure 1 Rapid response model for mandibular fractures by community clinic dentists under the National Health Insurance (NHI) system in Taiwan. (A) The architecture of this model was demonstrated in this case report. (B) The panoramic radiograph of the patient's first visit to the community dental clinic 2 years ago showed an intact mandible contour. (C) The panoramic radiograph obtained after the facial trauma revealed a significant displacement of the left mandibular ramus with an oblique bone fracture line from the distal area of the tooth 38 to the mandibular angle. (D) The panoramic radiograph obtained 3 months after surgery showed complete healing of the left mandibular angle fracture with the plates and screws from the open reduction and internal fixation (ORIF) procedure remaining.

arranged an urgent visit to an oral surgeon's outpatient clinic for her. Then, she was admitted to the hospital for open reduction and internal fixation (ORIF) procedure to reposition the fractured mandible.

Three months after the incident, the patient had a follow-up visit to her community dental clinic. She reported good recovery, with only minor occlusal interference on the left maxillary posterior teeth. The panoramic radiograph showed complete healing of the left mandibular angle fracture with the plates and screws from the ORIF procedure remaining (Fig. 1D). The dentist performed an occlusal adjustment on her left maxillary first molar to eliminate the occlusal interference.

With prompt and appropriate treatment, the overall prognosis for the patients with mandibular fractures is good, especially if there are none of other associated injuries.[4] The general community dentists do not necessarily have specialized expertise in treating facial bone fractures. However, they can play an active role in caring for the patients with facial bone fractures. In Taiwan, as in this case, due to the high accessibility of dental services, the patients with facial bone trauma are more likely to seek help from the community dentists rather than from the emergency physicians when they can make their own decisions. Furthermore, since the community dental clinics generally have panoramic radiography equipment, the community dentists can provide initial facial trauma care and quickly diagnose facial bone fractures by the panoramic radiography, thereby making the most appropriate referral arrangements. The National Health Insurance (NHI) system currently has a dedicated referral channel for the dental specialists. The community dentists can leverage this to quickly connect the patients with facial bone fractures to the oral surgeons, effectively securing the golden window period for treatment of facial trauma and avoiding the serious complications caused by delayed treatment.

Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

Acknowledgments

We are grateful to Yi-Hsin Cheng, the student of Taipei Municipal Dazhi High School, for designing and producing the schematic diagram of Fig. 1A in this article.

References

1. Jin KS, Lee H, Sohn JB, et al. Fracture patterns and causes in the craniofacial region: an 8-year review of 2076 patients. *Maxillofac Plast Reconstr Surg* 2018;40:29.
2. Lamphier J, Ziccardi V, Ruvo A, Janel M. Complications of mandibular fractures in an urban teaching center. *J Oral Maxillofac Surg* 2003;61:745—50.
3. Anyanechi CE, Saheeb BD. Complications of mandibular fracture: study of the treatment methods in calabar, Nigeria. *West Indian Med J* 2014;63:349—53.
4. Furr AM, Schweinfurth JM, May WL. Factors associated with long-term complications after repair of mandibular fractures. *Laryngoscope* 2006;116:427—30.

Feng-Chou Cheng[†]
Chia-Te Dental Clinic, New Taipei City, Taiwan
School of Life Science, College of Science, National Taiwan Normal University, Taipei, Taiwan
Science Education Center, National Taiwan Normal University, Taipei, Taiwan

Ling-Hsia Wang[†]
Center for the Literature and Art, Hsin Sheng Junior College of Medical Care and Management, Taoyuan, Taiwan

Hsiao-Yi Chen[**]
Department of Medical Imaging, National Taiwan University Hospital, College of Medicine, National Taiwan University, Taipei, Taiwan

Chun-Pin Chiang[*]
Department of Dentistry, National Taiwan University Hospital, College of Medicine, National Taiwan University, Taipei, Taiwan
Graduate Institute of Oral Biology, School of Dentistry, National Taiwan University, Taipei, Taiwan
Department of Dentistry, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, Taiwan
Institute of Oral Medicine and Materials, College of Medicine, Tzu Chi University, Hualien, Taiwan

** Corresponding author. Department of Medical Imaging, National Taiwan University Hospital, College of Medicine, National Taiwan University, No. 1, Chang-Te Street, Taipei, 10048, Taiwan.
E-mail address: chenhsiaoyi1976@gmail.com (H.-Y. Chen)

* Corresponding author. Department of Dentistry, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, and Institute of Oral Medicine and Materials, College of Medicine, Tzu Chi University, No. 707, Section 3, Chung-Yang Road, Hualien 970, Taiwan.
E-mail address: cpchiang@ntu.edu.tw (C.-P. Chiang)

Received 18 August 2025
Available online 3 September 2025

[†] These two authors contributed equally to this work.