

CASE REPORT

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An Unusual Occupational Injury:
Radial Crack Related to Tooth Extraction

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Una lesión ocupacional inusual:
Fractura radial relacionada con la extracción de un diente

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ABSTRACT: Dentists are vulnerable to occupational injuries associated with dental procedures, and to their work environment. Lack of appropriate and safe working conditions can put dental professionals at risk of injuries, the majority of which are musculoskeletal, especially in the wrist. This report presents a case of a radial crack in the wrist of a dental student which occurred as a complication of a tooth extraction procedure. Also, emphasises the need for education about workplace risks and hazards, starting at the undergraduate level, to promote prevention of occupational injuries.

KEYWORDS: Occupational hazard; Tooth extraction; Wrist; Dentist.

RESUMEN: Los dentistas son vulnerables a las lesiones ocupacionales asociadas con los procedimientos dentales y a su entorno de trabajo. La falta de condiciones de trabajo adecuadas y seguras puede poner a los profesionales dentales en riesgo de sufrir lesiones, la mayoría de las cuales son musculoesqueléticas, especialmente en la muñeca. Este informe presenta un caso de fractura radial en la muñeca de una estudiante de odontología que ocurrió como complicación de un procedimiento de extracción dental. Asimismo, enfatiza la necesidad de educación sobre riesgos y peligros laborales, comenzando en el nivel de pregrado, para promover la prevención de lesiones laborales.

PALABRAS CLAVE: Riesgo laboral; Extracción dental; Muñeca; Dentista.

INTRODUCTION

Various risk factors including physical, biological, ergonomic, physiological and chemical risks are reported to make dental practitioners vulnerable to occupational injuries (1,2). Physical or ergonomic risk factors, which can be associated with using dental equipment and/or a lack of knowledge of postural situations, may trigger musculoskeletal injuries, especially in the hand and wrist (2). To our knowledge there have been no case report in the literature presenting a hairline crack that has occurred in the non-dominant wrist related to tooth extraction procedure. Therefore, the aim of this report is to present a rare case of a radial crack in the wrist of a dental student which occurred after she undertook a dental extraction procedure.

CASE REPORT

A 45-year-old woman with a complaint of pain in the left maxillary molar region reported to the Oral and Maxillofacial Surgery Clinic of Ordu University. Clinical and radiological examination showed periodontally compromised and over-erupted left maxillary second and third molar teeth. Caries detected in the left maxillary third molar tooth, and the roots of both teeth showed mild dilaceration (Figure 1). These findings meant that the patient needed tooth extractions.

A 23-year-old female dental student who is in the last year of her dental education, and had no occupational injury, performed the extractions. She elevated the teeth with a straight elevator and extracted with forceps using her right hand. During the extraction process, while employing her left hand to support the alveolar process, she reported that she had heard a cracking sound from her left wrist. She also stated that she was trying to reach sterile gauze with her right hand while using her left hand to support the alveolar process, and

heard the cracking sound at this time. She added that she felt to apply involuntarily high amount of force to her left-hand wrist in this non ergonomic position. Also, after finishing the extractions, the student experienced pain, spasm and restricted movement in her left wrist. She initially ignored these symptoms, however; because of the continued pain, paraesthesia in her fingers, and swelling in her wrist, she subsequently attended the Emergency Department of Ordu University's Faculty of Medicine. After clinical and radiological examinations, a hairline crack was detected in the distal region of the left radius (Figure 2). After informed consent was obtained, a wrist splint was applied, and analgesic and anti-inflammatory drugs were prescribed. The student was also warned about restricting the movement of his left hand and not performing any clinical tasks during this period. Two months later, when the splint was removed, improvement was noted in terms of her symptoms. Thus, she advised to return to undertake clinical tasks by starting with simple extractions, and to perform complex procedures when the symptoms were completely resolved. Informed consent was obtained from the patient and the student to publish this report.

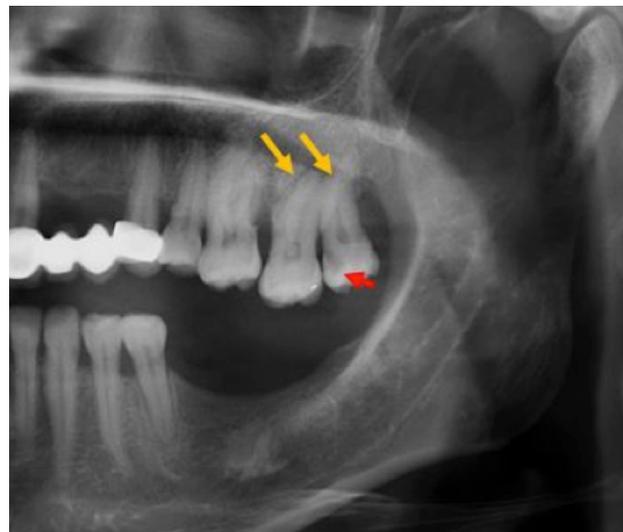


Figure 1. Panoramic view of the patient before extraction (Caries showed with red arrow, dilacerations showed with yellow arrows)



Figure 2. Crack line located in the distal part of the radius (arrow).

DISCUSSION

Despite advancements in dental equipment, and improvements in working conditions, occupational hazards continue to affect dentists' work and productivity (3). It has been reported that 55-93% of dental practitioners experience occupational based work-related musculoskeletal disorders, especially in the spine, shoulders and wrist (4,5). The reason for this high prevalence is considered to be a lack or poor knowledge of how to apply ergonomic principles in clinical practice (4).

Dentistry is a profession that usually requires frequent and controlled strength while performing procedures (6). During tooth extraction, excessive/repeated stresses and strains, along with the hyperextension of the wrist, contribute to wrist injuries (7). Badjate and Cariappa (7) reported an unusual case of scapholunate dislocation after tooth extraction in the wrist of the dominant hand. However, in the present case a radial crack occurred

in the left (non-dominant) wrist, which the student had used to support the patient's alveolus. Incorrect work posture, the application of uncontrolled/excessive force and ergonomically inadequate working conditions may have promoted excessive stress on the student dentist's supporting hand. In daily practice, ergonomics has been neglected in dentistry (6). In order to perform a safe and uncomplicated procedure, it is very important to sustain an ergonomically sound working position, use appropriate force and instruments, as well as ensuring appropriate ergonomic conditions in the workplace (8). Additionally, educating students throughout their undergraduate studies about workplace risks can play a crucial role in the prevention of work-related injuries.

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COMPETING INTEREST

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