

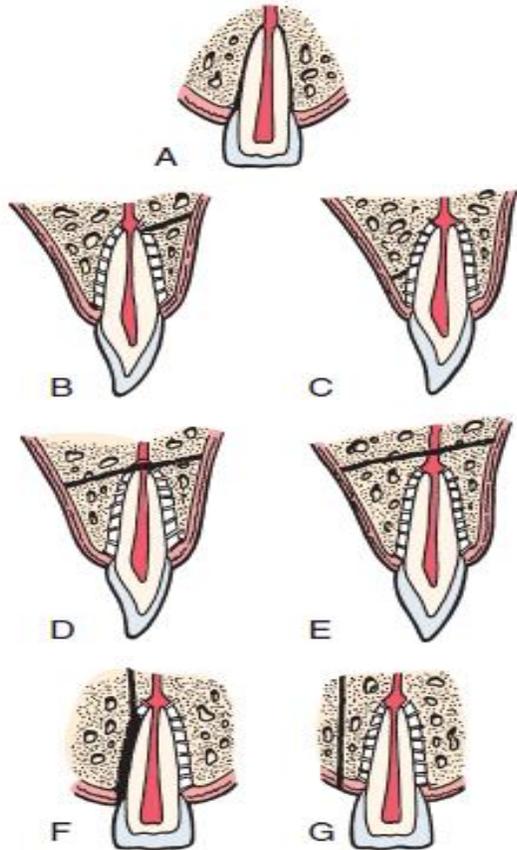


Alveolar process fracture

BY PEAR BANGSUWAN ,DDS



TYPE OF ALVEOLAR FRACTURE



A : Comminution of the alveolar socket.

B and C: Fracture of the alveolar socket wall.

D and E: Fracture of the alveolar process.

F and G : Fracture of the mandible and maxilla.

(Andreasen JO, 1970)

CLASSIFICATION

Classification of Alveolar Bone Fracture

Type I: Areas surrounding a single tooth

Type II: Entire dentoalveolar segment dislocation



Alveolar fracture can be classified by their specific location and movement of displacement

Class I: Edentulous segment fracture

Class II: Little or any displacement of fractured dentulous segment

Class III: Moderate to severe displacement of fractured dentulous segment

Class IV: Multiple fracture lines with combination of fracture of the dentulous segment



CLINICAL MANIFESTATIONS

**Contusion of
mucosal
tissues**



**Laceration of
mucogingival
tissues, or lip**



**Lateral
luxation or
Avulsion**



EPIDEMIOLOGY OF ALVEOLAR PROCESS FRACTURE

Country	Year	Population	Etiology	Sex/age	Results
Copenhagen University Hospital Denmark 2015	1965 - 1997	All 299 cases of alveolar fractures involving 815 teeth	violence (33%), falls (32%) or traffic injuries (26%).	Male mean age = 29.1 years	maxilla (74%) > mandible (26%). The number of teeth involved : two- seven teeth The most location (<u>maxillary</u>) : the sagittal suture between the two central incisors <u>Mandibular</u> : distal along the periodontal ligament of canines
Shiraz, Iran 2021	2016 - 2020	All=447 cases 165 patients (34.5%) had alveolar fractures	road accidents (32.3%)	Male 21-30years.	Anterior area the prevalence of maxillary alveolar fractures was more common in the male with anterior trauma 44%



CASE PRESENTATION



HISTORY TAKING AND EXAMINATION

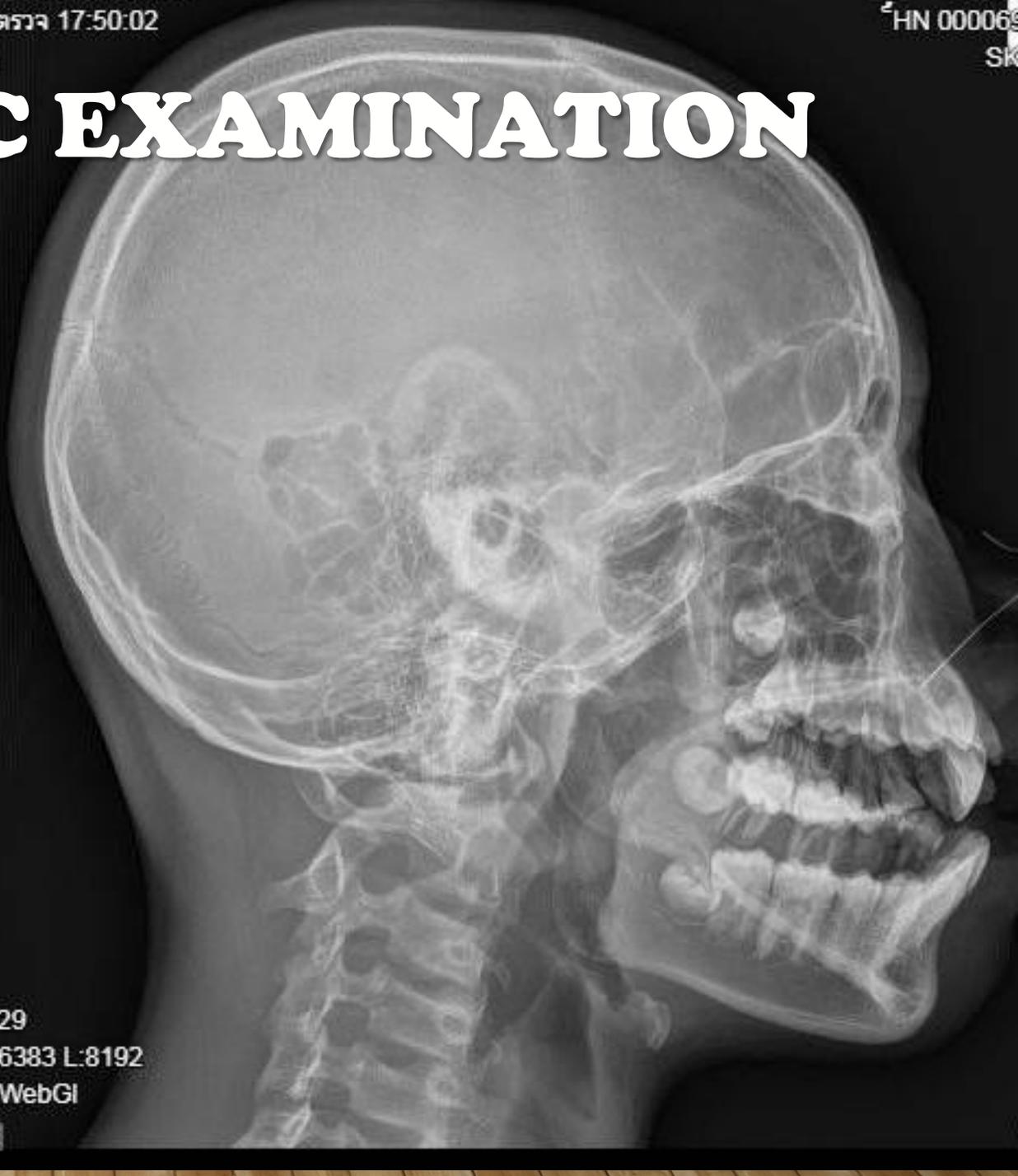




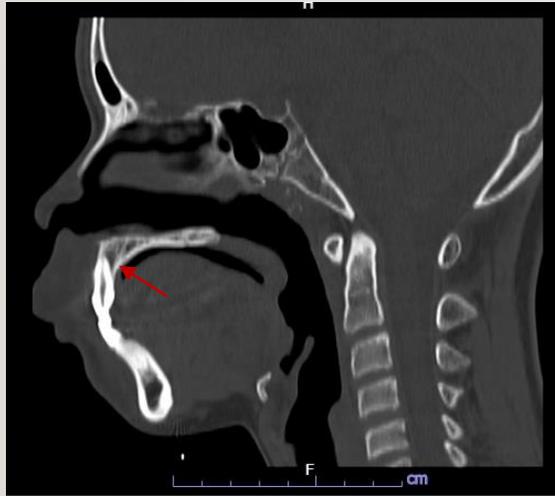
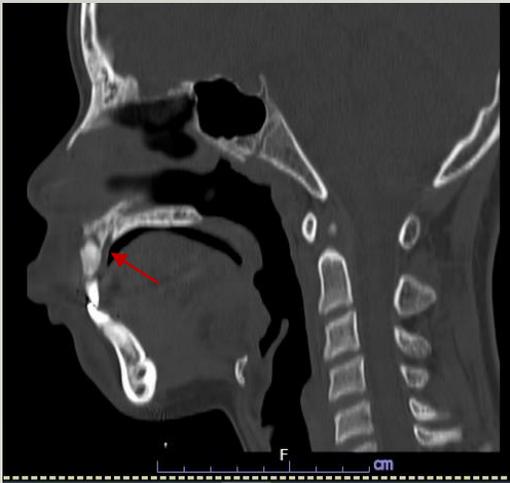
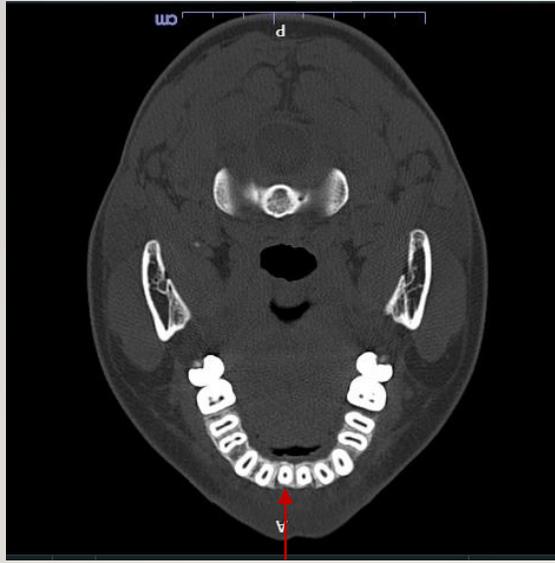
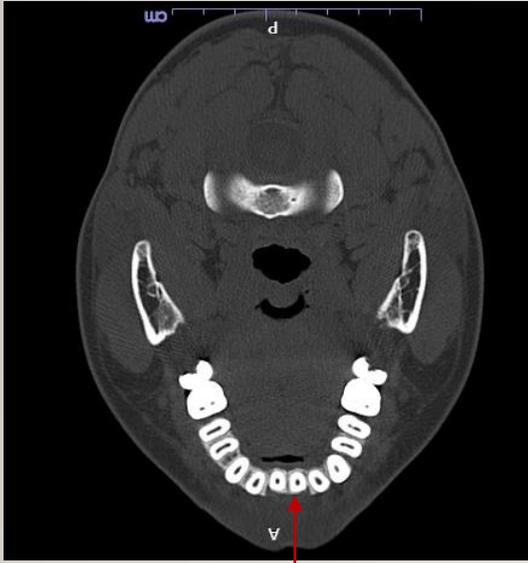
INTRAORAL EXAMINATION



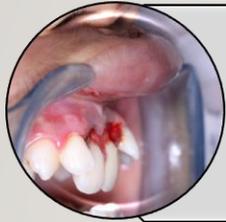
RADIOGRAPHIC EXAMINATION







PROBLEM LISTS



Alveolar process fracture
at area of 11 - 21



12 subluxation tooth



22 concussion tooth



MANAGEMENT



POST – OP CARES

- Antibiotic therapy : Augmentin 1 g 1 tab PO bid x 7 days
- 0.12% Chlorhexidine Mouthwash
- Soft diet for up to 2 weeks.
- Avoid participation in contact sports.
- Follow up : 2weeks , 4 weeks , 8 weeks and 12 weeks

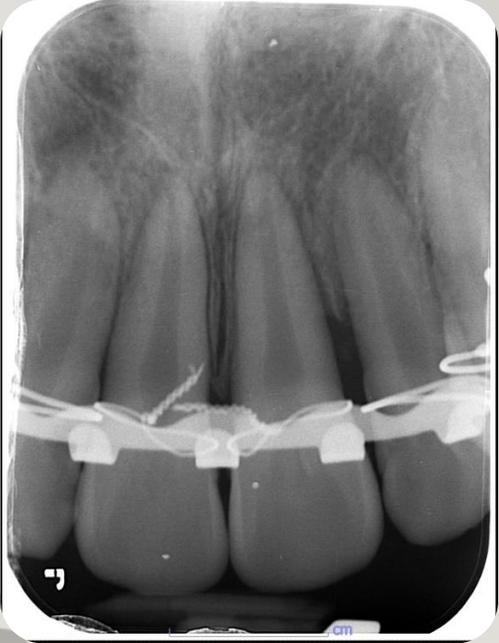
FOLLOW UP



2 weeks



4 weeks



FOLLOW UP



8 weeks

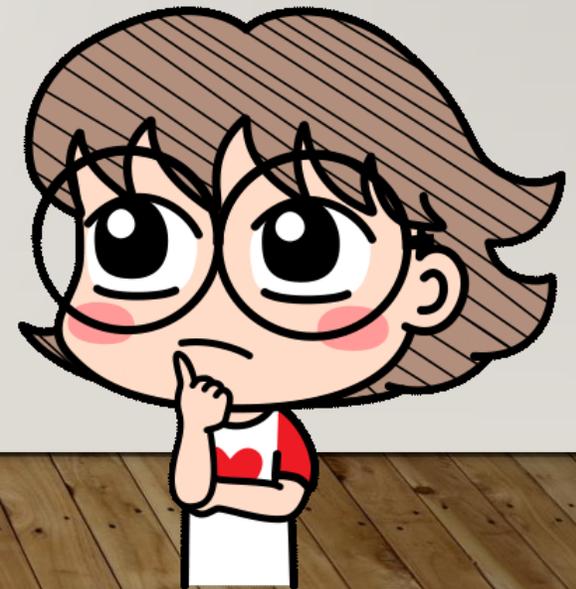


12 weeks

Negative to EPT test
11 , 21 and 12



DISCUSSION



THE BASIC PRINCIPLES OF THE MANAGEMENT OF BONE FRACTURES



(Andreasen JO, 1970
Chigurupati R,2007)

THE BIOMECHANICAL PRINCIPLES OF THE TREATMENT FOR ALVEOLAR PROCESS FRACTURES

Correct positioning of the traumatized teeth

The stabilization of the fractured bone

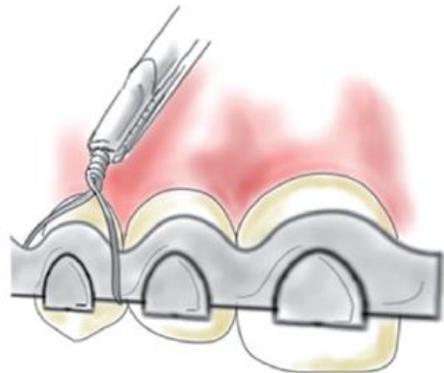
A period of splinting to improve the healing process

Occlusal adjustment after stabilization

TYPES OF SPLINTS

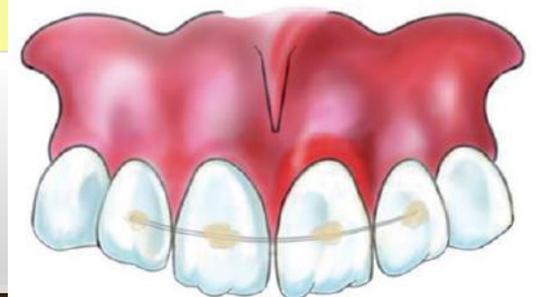
- Suture splints
- Arch bar splints
- Acrylic splints
- Composite splints

Rigid



- Orthodontic brackets and arches
- Wire and composite splints
- Fiber splints
- Titanium trauma splints (TTS)

Semirigid



Arch bar splints

FOR 4 WEEKS





✓ Pulp necrosis

✓ Bone loss

4 weeks



8 weeks

12 weeks



COMPLICATIONS IN TEETH

Pulp necrosis

Marginal bone
loss
(= >3 mm.)

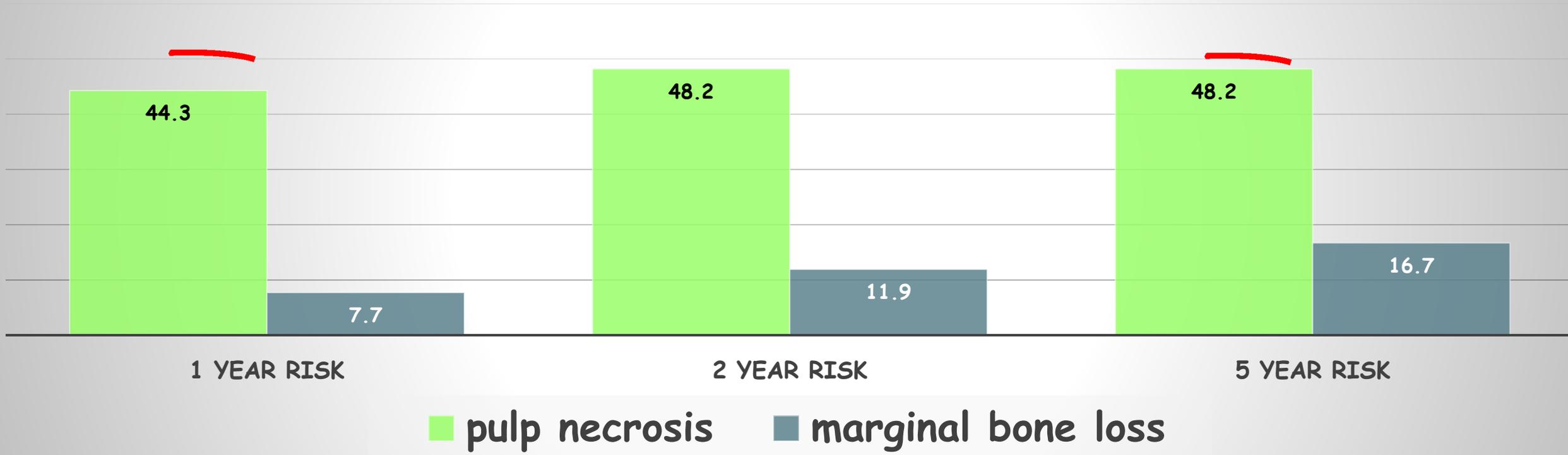
root resorption

Ankylosis

Tooth loss

ESTIMATED RISK AFTER A 1-YEAR, 2-YEAR AND 5-YEAR FOLLOW-UP FOR HEALING COMPLICATIONS IN ALL TEETH INVOLVED IN FRACTURES OF THE ALVEOLAR PROCESS

Estimate risk



Marotti M, Ebeleseder KA, Schwantzer G, Jauk S. A retrospective study of isolated fractures of the alveolar process in the permanent dentition. Dent Traumatol. 2017 Jun;33(3):165-174.

Alveolar process fractures in the permanent dentition. Part 2. The risk of healing complications in teeth involved in an alveolar process fracture

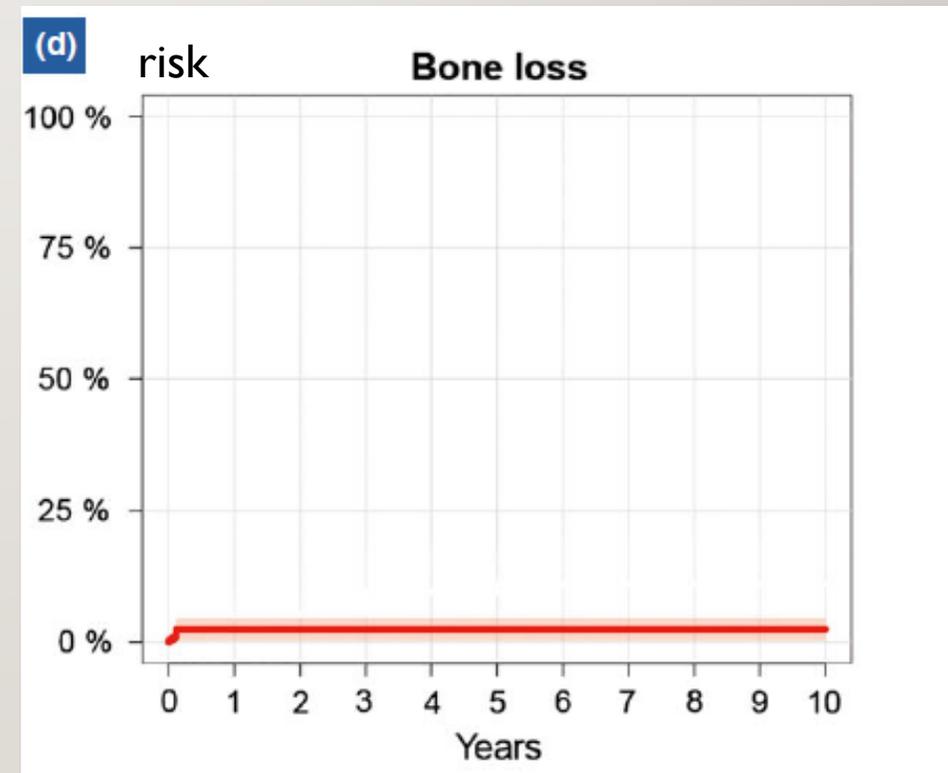
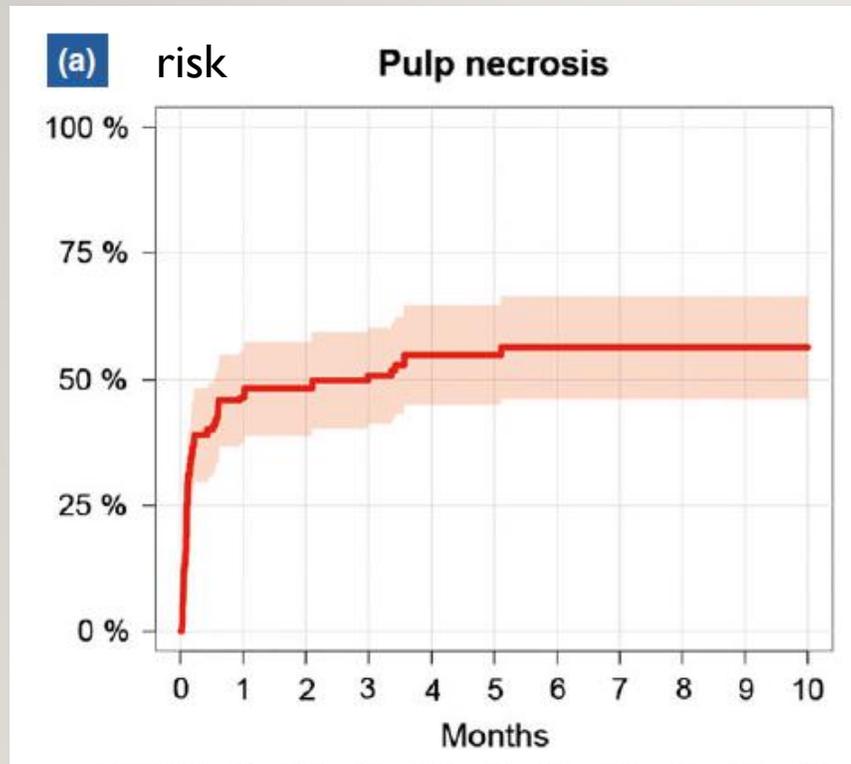


Table 4. Cox regression analysis of factors associated with pulp necrosis in teeth with mature root development

	Hazard ratio	95% CI	P-value
Age			
Less than 20 years			0.10
20–30 years	1.78	0.9–3.57	
More than 30 years	2.27	1.14–4.55	0.02
Fracture in relation to the apex of the tooth			
No			
Yes	2.61	1.21–5.66	0.01
Displacement in the horizontal part of the fracture			
≤2 mm			
>2 mm	1.82	1.05–3.15	0.03
Gingival injury			
No			
Yes	0.73	0.42–1.26	0.26
Degree of repositioning			
Complete			
Incomplete	2.11	1.29–3.45	0.003
Treatment delay			
≤3 h			
>3 h	0.98	0.55–1.77	0.96
Antibiotic			
No			
Yes	0.91	0.44–1.85	0.79



Age



Fracture line relation to the apex of the tooth



Displacement in the horizontal part



Degree of repositioning

Bold indicates significance <0.05.

PROGNOSTIC FACTORS OF TOOTH IN ALVEOLAR FRACTURES

1. Time interval between injury and fixation of alveolar fracture
2. Type of alveolar fracture
3. Associated dental injury (luxation or avulsion) to the teeth in the fractured segment
4. Stage of root development of the teeth involved
5. The health of the periodontal tissues

CONCLUSION

Key success factors in treatment of alveolar fracture

Timing of treatment

- Early treatment is important for promoting healing and reducing the risk of complications.

Appropriate diagnosis

- Accurate diagnosis of the type and extent of the fracture is crucial for determining the best course of treatment.

Use of proper splinting material

- Selecting the appropriate type of splint (rigid or flexible) and ensuring proper placement is crucial for promoting healing and reducing the risk of further injury.

Adequate pain management

- Pain management is important for patient comfort and to ensure proper healing.

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คุณ
ค่ะ

