



# A Rare Emergency Presentation of Sodium Hypochlorite Injury during Root Canal Treatment.

Dr Waqas Mahmood Senior House Officer; Emergency Department, Portiuncula University Hospital

Dr Kiren Govender Consultant in Emergency Medicine, Portiuncula University Hospital



### Introduction:

Root Canal is a common procedure performed in dental surgeries. Sodium Hypochlorite (NaOCl) is a routine chemical irrigant used in the root canal treatment by the dental practitioners. Its strong antimicrobial properties with low cost makes it a very desirable solution. This solution however causes complications due to its cytotoxic nature. If the solution leaks into the surrounding tissue the patient may experience intense pain and swelling which requires urgent assessment and treatment to avoid long term sequalae. Such cases may mimic anaphylaxis, 'Written Consent' was obtained from the patient.

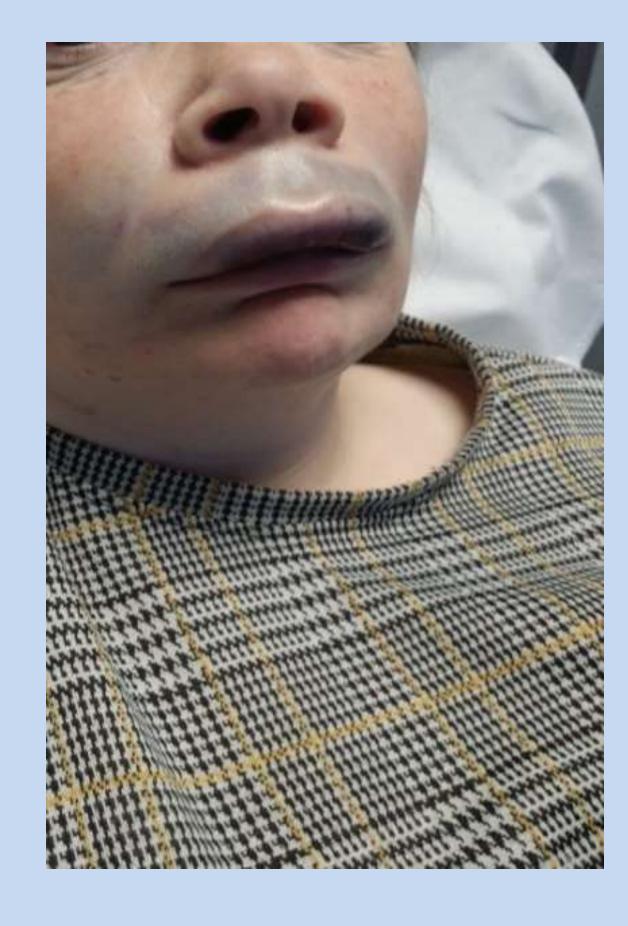


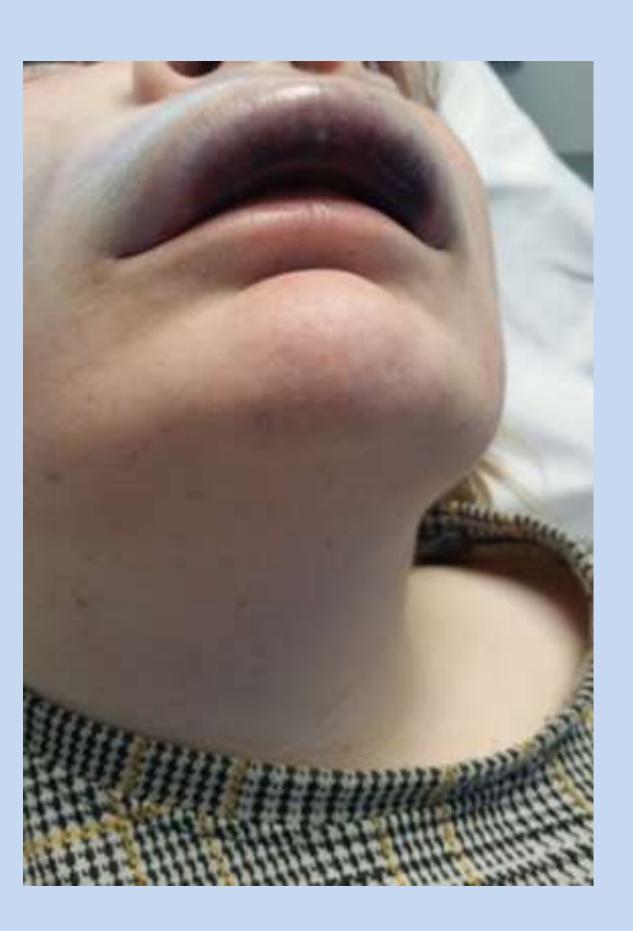
## **Case Presentation:**

A 42yr old female was sent to emergency department 2hours following dental appointment, where she was getting root canal treatment of her central incisor as a possible allergic reaction. She was thus triaged for immediate assessment.

On initial presentation the patient was distressed with significant swelling and bruising of the upper lip and pain which she described as unbearable. She had stable vital signs with a minimally raised blood pressure, pulse and respiratory rate. There was no airway compromise and her breathing was normal. She had no symptoms of shock and no itchy erythematous urticaria. The patient had no previous allergies, with no medical history of note and was not on any medication that could cause angioedema.

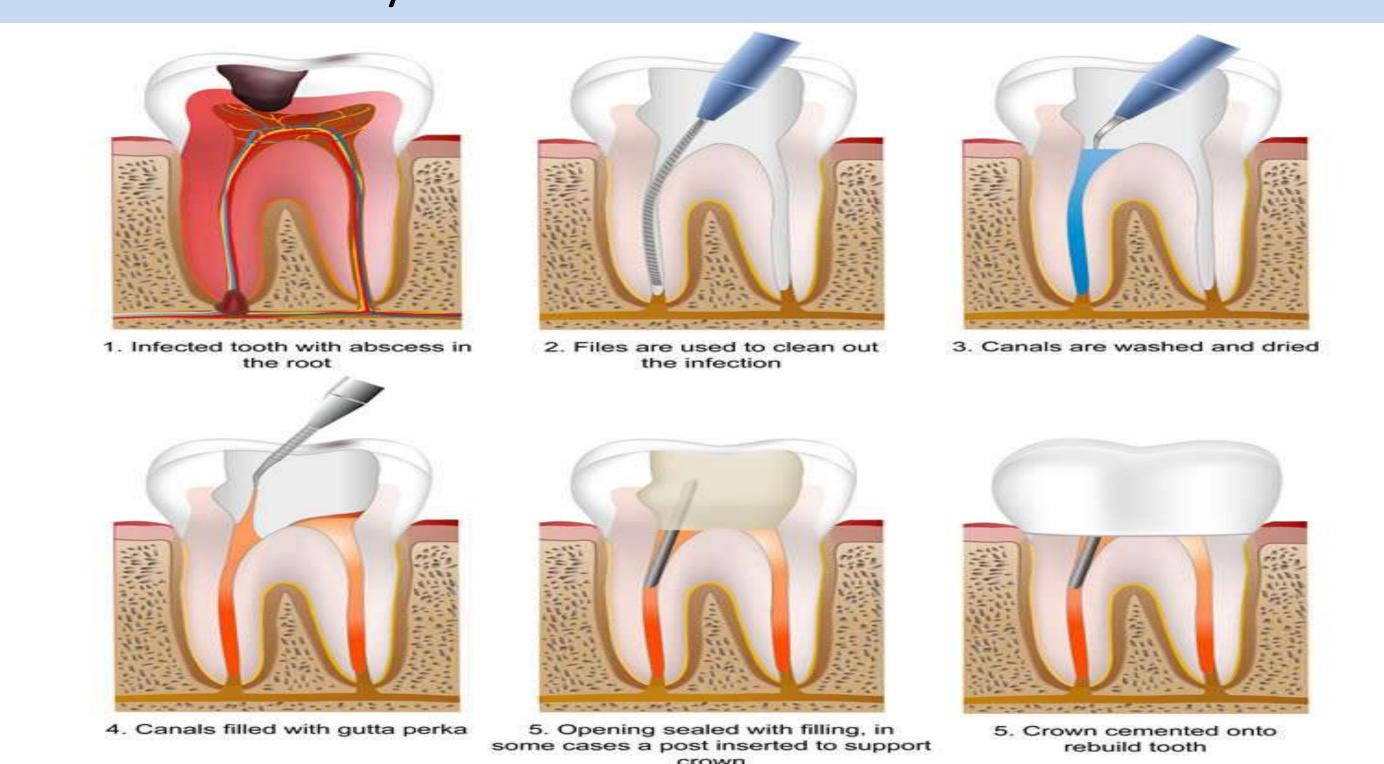
A focused history led to an assessment of sodium hypochlorite injury.





# Management:

The initial emergent management followed standard immediate assessment of airway, breathing and circulation protocol. However this was preceded by giving the patient intravenous analgesia for her intractable pain in order to take a good history and thoroughly examine her. It was important to examine and protect her airway and there after assess the area of interest. She received further analgesia, fluids and antibiotics and was subsequently referred to maxillofacial team. The patient underwent surgical assessment and irrigation of the canal and the area in the theatre with an uneventful recovery.



### **Discussion and Conclusion:**

NaOCl is a widespread irrigant used on root canal debridement. Extreme pressures during the irrigation process can lead to extrusion of NaOCl into the periapical tissue. These injuries can be life threatening and mimic anaphylaxis. According Huolsmann's 6 criteria, the diagnosis of NaOCl includes acute pain; bruising; progressive swelling involving mouth, the infraorbital region depending on the site of NaOCl; profuse haemorrhage; numbness or weakness of facial nerve; secondary infection with sinusitis and cellulitis. In the case presented, the patient developed a typical presentation of NaOCl injury which was initially thought to be an anaphylactic reaction. It is important to recognise these incidents early and start treatment immediately.

It is therefore necessary to have a high degree of suspicion. Take a good history and examine the patient well. It is important to ensure adequate analgesia is given intravenously to ensure a complaint patient during consult and examination. Early intervention prevents destructive tissue necrosis that can occur locally during the cleaning process. This tissue destruction can lead to local inflammation and airway oedema. Intractable pain is experienced this necrosis involves nerve branches.



## References:

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- 2) Huolsmann M, Hahn W et al., 'Complication during root canal irrigation-Literature review and case reports'. Int Endod J.2000;33:186-93.