IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 16, Issue 2 Ver. V (February. 2017), PP 71-73
www.iosrjournals.org

Management of Palatal Mucosa Necrosis Due To Accidental Sodium Hypochlorite Injection Instead of Local Anesthetic Solution- A Case Report

Tajamul Hakim[1,] Manzoor Dar[2,] Shahid Farooq[3,]Shamina Kosar[4,] Farhan Khawaja[5,] Nazish Khan[6,] Shiekh Nuamaan[7,]Samar Khan[8]

Abstract: *We present a case in which sodium hypochlorite (NaOCl) was inadvertently injected into the palatal mucosa instead of local anesthetic solution. A 35 year old male reported to the postgraduate department of oral and maxillofacial surgery, Government Dental College, Srinagar J& K U 02 days after an inadvertent NaOCl injection into the palatal mucosa at a periphery dental clinic. Soft tissue necrosis was evident, without obvious bony involvement. Patient was managed by surgical debridement of the necrotic tissue and subsequent iodoform dressings.Soft tissue healing was achieved fully without any complications.*

Keywords*: irrigation, palatal necrosis, sodium hypochlorite, iodoform.*

I. Introduction

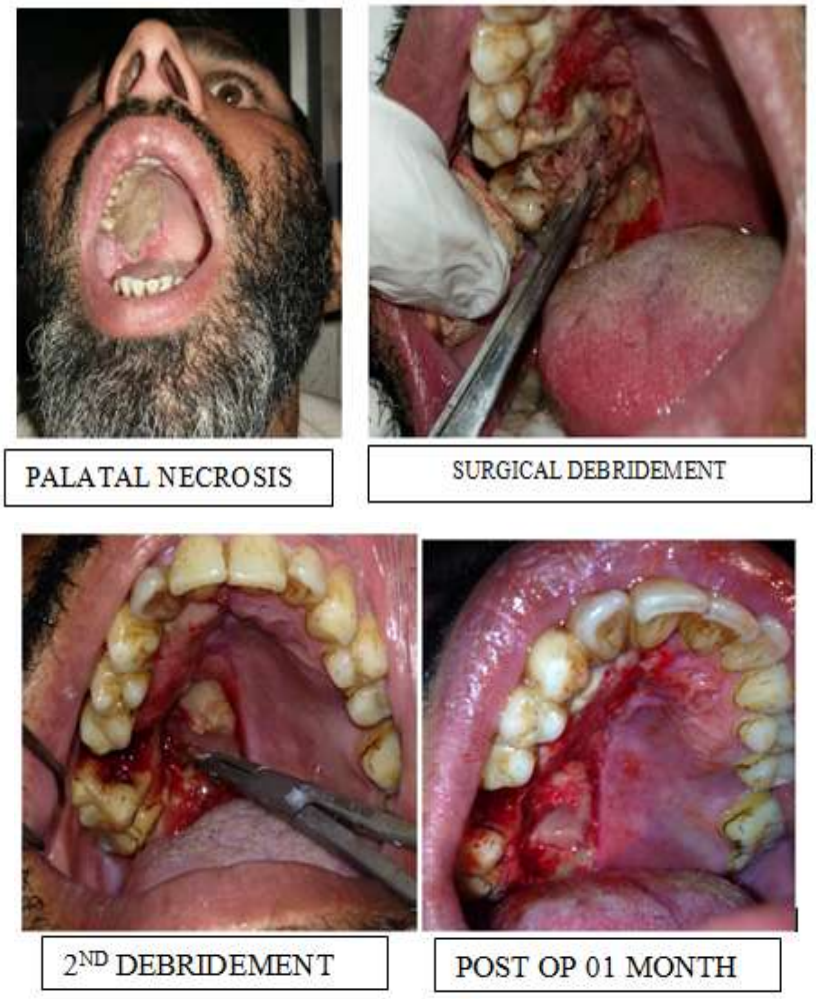
Sodium hypochlorite (NaOCl) is one of the most frequently used irrigating solutions in endodontic treatment. It is effective against a broad spectrum of microorganisms, dissolves necrotic tissues, and has lubricant properties (1). However, it is also toxic to vital tissues, has an unpleasant odour and causes damage if it comes into contact with clothing (2). A 1% concentration of NaOCl provides sufficient tissue dissolution and antimicrobial effect, but the concentration used in dentistry has been as high as 5.25% . Many recommend the use of NaOCl at high concentrations, because of enhanced anti-microbial activity(3). However, numerous reports have described clinical complications because of the misuse of NaOCl, including inadvertent injection into the periapical tissues (4,5) or maxillary sinuses(6). Oral tiisues have a high turnover and can heal spontaineously but local debridement and sterile environment can cause excellent healing in such cases.

we report a case in which NaOCl was inadvertently injected instead of anaesthetic solution, resulting in severe palatal tissue necrosis that was managed by surgical debridement and iodoform dressings.

Case report

A 35-year-old male reported to the postgraduate department of oral and maxillofacial surgery, Government Dental College, Srinagar J& K U 02 days after an inadvertent NaOCl injection into the palatal mucosa at a periphery dental clinic. He was medically healthy and was a nonsmoker. A clinical diagnosis of pulpitis was made and pulpectomy was planed , the dentist decided to administer local anesthesia. However, instead of anesthetic solution, NaOCl (2.5%) was injected into the maxillary palatal mucosa. This mistake occurred because both solutions were dispensed in identical containers, and because the dentist did not carefully check before injecting. The patient reported sudden, severe pain and at that time, the dentist realized the mistake. Severe pain continued for 2 days, after which it subsided and patient reported to our department.Intraoral examination revealed a grayish white necrotic tissue involving half of the palate on right side, extending from nasopalatine area anteriorly to soft palate posteriorly and upto mid palatine suture medially. The surrounding area was purple and swollen. The area was painless, even during palpation.

Surgical debridement of the necrotic tissue was done in first siting and iodoform dressing was sutured on the debrided wound using 3-0 black silk. Patient was recalled after two weeks and the lesion showed considerable healing. A second surgical debridement was done and the wound was again covered with iodoform dressing. An acrylic palatal splint was made to hold the iodoform dressings which were done for 3 months. Complete healing of the palatal soft tissue was achieved with this method and neural sensation also returned on the same area. Patient was followed up for 1 year with no evidence of further necrosis.



II. Discussion

Higher concentrations of NaOCl have increased toxicity and can irritate periodontal and periapical tissues (7). Heling reported that NaOCl concentrations >0.001% are lethal to fibroblasts in vitro(8). Inadvertent use may cause several complications (6,9). Swallowing NaOCl may cause pharyngeal oedema and oesophageal burns (10), whilst damaged permanent tooth follicles, peripheral tissues and oral mucosa (11) have been reported during careless use in paediatric endodontics. The literature contains several reports of complications during root canal irrigation. Et al (12) reported a case of palatal mucosa necrosis after accidental sodium hypochlorite injection.In the current case, the dentist also injected 2.5% NaOCl into the palatal mucosa. Approximately, 0.5mL of NaOCl was injected, which was enough to cause severe tissue necrosis. Oral epithelium on the hard palate has the second highest mitotic activity in the mouth (13), with turnover of the oral epithelium occurring in 5–6 days (14). Et al (12) reported spontaneous healing of a small palatal necrotic area but in present case the necrosis was severe with a large necrotic area. Surgical debridement was done with subsequent iodoform dressings. Iodoform is an excellent antiseptic that provides a sterile environment for tissue healing (15). Some clinicians deliver NaOCl from standard dental syringes, in the belief that the long, fine needles are helpful. The present case, however, shows that this practice is potentially dangerous. In order to avoid future risks, clinicians should refuse to use NaOCl presented in local anaesthetic delivery devices, or unclearly labelled cartridges and carefully check them before injecting into patients.

III. Conclusions

NaOCl is highly irritant when extruded into vital tissues and can cause severe tissue necrosis. Dentists should be careful to avoid the misuse of NaOCl, and should check the nature of any agent before injecting it into patients. The well-perfused tissues of the oral cavity have considerable healing ability and iodoform is an excellent antiseptic that hastens tissue healing.

References

[1]. Jeansonne MJ, White RR (1994) A comparison of 2.0% chlorhexidine gluconate and 5.25% sodium hypochlorite as antimicrobial endodontic irrigants. Journal of Endodontics 20, 276–8.

[2]. Serper A, Ozbek M, Calt S (2004) Accidental sodium hypochlorite-induced skin injury during endodontic treatment. Journal of Endodontics 30, 180–1.

[3]. Yeş ilsoy C, Whitaker E, Cleveland D, Phillips E, Trope M (1995) Antimicrobial and toxic effects of established and potential root canal irrigants. Journal of Endodontics 21, 513–5.

[4]. Sabala CL, Powell SE (1989) Sodium hypochlorite injection into periapical tissues. Journal of Endodontics 15, 490–2.

[5]. Hü lsmann M, Hahn W (2000) Complications during root canal irrigation – literature review and case reports. International Endodontic Journal 33, 186–93

[6]. Ehrich DG, Brian JD, Walker WA (1993) Sodium hypochlorite accident: inadvertent injection into maxillary sinus. Journal of Endodontics 19, 180–2.

[7]. Gernhardt CR, Eppendorf K, Kozlowski A, Brandt M (2004) Toxicity of concentrated sodium hypochlorite used as an endodontic irrigant. International Endodontic Journal 37, 272–80.

[8]. Heling I, Rotstein I, Dinur T, Szwec-Levine Y, Steinberg D (2001) Bactericidal and cytotoxic effects of sodium hypochlorite and sodium dichloroisocyanurate solutions in vitro. Journal of Endodontics 27,278–80.

[9]. Kaufman AY, Keila S (1989) Hypersensitivity to sodium hypochlorite. Journal of Endodontics 15,224–6.

[10]. Seltzer S, Farber PA (1994) Microbiologic factors in endodontology. Oral Surgery, Oral Medicine and Oral Pathology 78, 634–45.

[11]. Oncag O, Hosgor M, Hilmioglu S, Zekioglu O, Eronat C, Burhanoglu D (2003) Comparison of antibacterial and toxic effects of various root canal irrigants. International Endodontic Journal 36,423–32.

[12]. U. K. Gursoy, V. Bostancı1& H. H. Kosger. Palatal mucosa necrosis because of accidental sodium hypochloriteinjection instead of anaesthetic solution; International Endodontic Journal, 39, 157–161, 2006

[13]. Trott JR, Gorenstein SL (1963) Mitotic rates in the oral and gingival epithelium of the rat. Archives of Oral Biology 8, 425–434

[14]. Beagrie GS, Skougaard MR (1962) Observations on the life cycle of the gingival epithelial cells of mice as revealed by autoradiography. Acta Odontologica Scandinavica 20, 15–31.

[15]. Vibha Singh, Somdipto Das, Nand Kishore Sharma. Iodoform: A boon in disguise; Open Journal of Stomatology, 2012, 2, 322-325