Unintended Formalin Injection instead of Local Anesthetic Agent: Its Causes & Management

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ABSTRACT
Mistakes do happen in every profession instead of proper precautions. Mishaps are those unfortunate accidents that occur during treatment, some owing to inattention to detail, others being very unpredictable and some are due to the negligence of the employee. Dental negligence may lead to severe complications and may threaten one's life. This case report presents an unconventional case of administering formalin in lieu of local anesthesia in a dental clinic leading to chemical cellulitis and its management.

Keywords: Dental negligence, formalin, Hypersensitivity, Local anesthetics

INTRODUCTION
Dental negligence is an avoidable injury caused by a dentist who does not take proper care of the patient.¹ In every occupation, mishaps occur. Unfortunately, mistakes in the healthcare profession could have serious consequences for the patient and a big trouble for the doctor. In dentistry there are many colorless solutions like sodium hypochlorite, normal saline, local anesthesia, hydrogen peroxide and formalin used for various purposes. All of them require special storage and handling. Formalin is a forty per cent, aqueous solution of formaldehyde.² It is a colorless, neutral, volatile liquid with a pungent odor and slightly irritating taste. It is used as a disinfectant, antisepctic and tissue preservative in dentistry.³ It is a toxic substance that needs careful handling and special processing and induces first-degree and second-degree burns when applied to the skin and mucosa. It has also deleterious effect on the digestive and respiratory systems.⁴ It can also be lethal at a dosage of 50-100 ml at a concentration of 40%.⁵ This case report describes an unusual case of chemical facial cellulitis caused by unintentional injection of formalin instead of local anesthetic into infraorbital space during infraorbital block.

CASE REPORT
A 25 yrs old male patient presented to the dental department with the chief complaint of severe pain and burning sensation in his right and left cheek. Intra-oral examination revealed a red and blackish lesion on the right and left buccal mucosa in the region of premolar. An extra-oral swelling was also evident, which appeared normal in color but was warm and tender on palpation (fig-1,2). During elicitation of detailed history from the patient, it was assumed that local dental practitioner has injected the local anesthesia for giving infraorbital block in relation to teeth nos.15 and 25 in order to attempt for extraction, as the patient had grossly decayed above mention teeth. Fortunately, he had injected very less quantity. Patient attendant gave us the bottle from which the local anesthesia was given. Considering that this was a hypersensitivity reaction, skin pinch test (fig-3) (SPT) was performed using the same solution with his signed permission. The results of the SPT were read after 15 minutes and were positive. But after observing the patient's symptoms and clinical condition, the solution of the syringe was checked, the pungent smell came out, so it was confirmed that clear liquid was formalin. By fault, the local practitioner might had loaded the formalin solution (2 mL), which had been placed in an untagged emptied bottle of local anesthesia, into the disposable syringe, assuming it was the local anesthetic agent. Usually, these cases require debridement and surgical intervention, but as the damage was less in the present case, it was decided to manage conservatively.

The patient was immediately administered dexamethasone (4 mg) intramuscularly to reduce inflammation. Saline was injected to dilute the formalin at the injection site. Then patient was admitted. The extra-oral warm swelling with erythema was noted to increase progressively for the first 24 h. The patient had severe pain with an increasing burning sensation. The patient was kept under strict supervision and monitor. Medications prescribed included injection intramuscular dexamethasone 8 mg twice a day (tapering doses: 8 mg once a day for 2 days and 4 mg once a day for 2 days), Intramuscular Diclofenac sodium twice for 5 days to reduce pain, Intravenous Amoxicillin + Clavulanate 1.2 gm to reduce the chance of aerobic infection, Intravenous Metrogyl 100ml thrice for 5 days prophylactically given to counteract anaerobic infection, Intravenous Ranitidine 2cc for 5 days to prevent gastric upset, patient was advised to use Betadine mouthwash to prevent oral infection. After 48 h of observation, the patient was discharged against medical advice. A follow-up appointment was scheduled. We examined the patient at a weekly interval. By the 2 weeks, swelling had completely regressed, patient had no complaint

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CONCLUSION

Health profession like dentistry is a very sensitive profession, only one single wrong step can lead to death of the patient. Mishap do happen due to the negligence, so every dentist should have sufficient knowledge of precautions and management regarding handling of dental drugs and chemicals to avoid such complication and health of the patient. Care must be taken to avoid an accident.

REFERENCES


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