

Seizures episodes after local anaesthesia in oral surgery: case report

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Cosola S. DDS MSc,^A Park YM. DDS,^B Kesztyus A. DDS.^C

A: Tuscan Stomatologic Institute, Foundation for Dental Clinic, Research and Continuing Education, Forte dei Marmi - Italy

B: Oral Health Center, Chulwon Public Health Center, Chulwon - South Korea

C: Semmelweis University, Budapest, Hungary

CORRESPONDENCE AUTHOR

Saverio Cosola

E-mail address: s.cosola@hotmail.it

CONFLICTS OF INTEREST

There are no conflicts of interest for any of the authors.

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ABSTRACT

A seizure is a paroxysmal alteration of neurologic function due to an over activation of neurons. Systemic or local anaesthetics may have proconvulsant activities and seizures could be a side effect during surgery. Authors reported a case of seizures after injection of local anaesthesia, but probably the cause was the phobia of the patient and not the anaesthesia itself.

INTRODUCTION

A seizure is a paroxysmal alteration of neurologic function caused by an over activation of neuronal cells.¹

Epilepsy syndrome reported to be a group of clinical manifestation that bring patients to have more or less frequent seizure episodes not provoked by external events; these seizures must be linked with other signs on Electroencephalography (EEG), familiarity,

episodes history, use of drugs.²

In dentistry field, only few papers in literature focused on this topic. Pick and Bauer (2001) reported that epileptic seizures are the third most common medical complications before or during dental surgical procedures.³ For these reasons it is very important to teach and inform dentist and oral surgeons about this complication and how to prevent or manage it. A useful advice for dental practitioners could be to use local anaesthesia without added adrenalin (e.g., Mepivacaine-cloridrato 2%).

This risk of seizures attacks occurs also in other fields of surgery where same drugs are used, and the risk of this complication increases in case of accidental intravenous injection of local anaesthetic agents.⁴

Usually, anaesthetics possess proconvulsant or anticonvulsant properties, or both.⁵

If the systemic levels of anaesthesia rises, it could determinate neurologic toxicity and thus the risk of epileptic episodes increases.⁶

The most part of seizures events during surgery, occurs at beginning of the surgery, probably for an intravascular injection, but this complication is possible also after 20-30 minutes because the blood concentrations of the drug can enhance to toxic levels also by a rapid systemic absorption from the area of injection, especially if the area is well vascularized or very inflamed.

Seizures attack induced by lidocaine can be terminated by barbiturates, but seizures may have a long duration and could be difficult to manage by dentists, even if these episodes are often self-limited reactions.⁷

Neurological specialists and Neuroscientists distinguish “Epileptic seizures” from seizure provoked by an external insult (e.g. fever, hypoglycemia or psychological factors).⁸

CASE PRESENTATION

As an experience of the authors on this topic, a patient (female, 23 years old) referred at Tuscan Stomatologic Institute in December 2017 for dental care. The operator (S.C.) performed local anaesthesia with Mepivacaine-cloridrato (2%) plus adrenaline (1:100 000) for a small surgical intervention of wisdom's tooth (3.8) extraction (Figure 1). The young patient reported no history of any epileptic seizure in anamnestic data, no assumption of drugs but only some allergies at same food and pollens. The patient had a seizure episode of 15 minutes, only 10-20 seconds after the first injection of local anaesthesia. The anaesthetic phial was of 1,8mL but only 0,3mL were injected before seizures started. The surgeons postponed the wisdom's tooth extraction suggesting a neurological check-up and an Electroencephalography (EEG) to the patient.

The day after, the mother of the young patient was interviewed about the episode.

The mother of the patient described similar events after other needles injection (drugs or vaccines) in which doctors suggested exams to check

the origin of these seizures episodes, but there was no information about local anaesthesia because that occasion was the first local anaesthesia for the young patient. The patient did not report in the anamnestic data any odontophobia and she was calm at the moment of oral surgery.

After two months of instrumental exams such as EEG and different neurological specialists, no signs of epilepsy were found and the event during the dental surgery was explained such a seizure provoked by reversible condition such as the phobia of needles injection. At the second time, the patient was treated using diazepam, relaxing music, anaesthetic gel and not making her see the needle before and during the injection.

This clinical experience gave the authors the opportunity to suppose that a lot of seizures during dental procedures may be provoked by a reversible insult and they could not be proper “epileptic seizures”.⁹

Of course, dentists always send patients with these attacks for neurological check-up to the specialists and patients received the correct diagnosis in the end. But dental practitioners could, sometime, misdiagnose these episodes when they report the complications during the oral surgery and this produces a bias about how many the “epileptic seizures” really are after dental local anaesthesia.

Father studies need on this topic to establish the causes of seizures after local anaesthesia because the causes might not be the anaesthetic injections.



Figure 1: Orthopantomography of the patient before dental treatments.

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