Acute Pain of the Trigeminal Nerve Due to Amalgam in the Mandibular Canal: A Case Report

Introduction

Despite numerous discussions about the toxicity of amalgam, it is still one of the most commonly used materials for dental restoration. The accidental implantation of amalgam into the mucosal connective tissue usually results in a permanent gray-black pigmentation, commonly referred to as amalgam tattoo. In most cases, the oral amalgam tattoo is an easily recognizable entity that usually does not require histological verification and treatment if the pigmentation is cosmetically acceptable. However, in some cases, if the amalgam particles are large, they should be removed to prevent a further foreign-body reaction as a therapy against fever and pain. Such complications are reported very rarely.

This is a rare case of amalgam allocation in an alveolar wound of an extracted third molar. This case report has an educational value and it is presented in order to warn the necessity of avoidance such a traumatic injury in the future.

Case Report

A 36-year-old woman was referred for a regular dental examination to a private practice. The general practitioner decided to extract the tooth #38. During the extraction, the neighbouring tooth #37 was broken. The general practitioner decided to make an amalgam filling to the tooth #37 during the same appointment, and directly after the extraction. As it was shown later this was a catastrophic decision.

Directly after the anesthesia was gone, the patient complained for acute pain, which extended to the whole region of the trigeminal nerve. The patient referred again to the same general practitioner and it was decided that teeth #36 and #37 had to be treated endodontically as it was thought that pain originated from pulp inflammation of the above mentioned teeth. During pulp extirpation and root canal preparation 2 root canal instruments were broken. The severe acute pain persisted, extending to the entire hemisphere of the trigeminal nerve. At that time a panoramic radiograph was made (Fig. 1), which showed that a large piece of amalgam was allocated near...
accepted that the release of mercury from amalgam can cause neurological problems\(^1\). The case we have described could be interpreted as a consequence of amalgam toxicity toward trigeminal nerve, probably due to mercury release. According to Lobner and Asrari\(^6\), zinc that is an amalgams’ constituent, demonstrates neurotoxicity as well.

In the above described case, it is not clear whether the acute pain that appeared in the whole region innervated by the trigeminal nerve was caused by mercury or by zinc. The level of release of the above mentioned mercury and zinc from amalgam in each case is not clear and therefore further investigation is suggested from Lobner and Asrari\(^6\), in order to estimate the concentration of each of the metals released from amalgam. Moreover, in our case we assumed that the origin of the large piece of amalgam might be from the extracted (restored) 3\(^{rd}\) molar or from the broken 2\(^{nd}\) molar, because it was well-shaped (Fig. 1). So, in our case, the severe pain might be caused from the hard compression of the nerve trunk. However, the fact was that the patient had a hard time, the amount of amalgam was huge, it was in close proximity to the mandibular canal and mandibular nerve and a surgery was followed in order to control the patients’ pain.

Different kind of foreign bodies have been described that were left during dental procedures, or found in the alveolar cavity of extracted teeth, especially third molars, that can cause a variety of pain. Amalgam has been described twice\(^3,5\), eugenol-containing endodontic sealer extrusion\(^2\) or bone wax\(^4\).

Conclusively, restoration with amalgam has to be avoided during a post-extraction time. Amalgam can demonstrate toxic effects to the mandibular nerve, that can be transferred to the whole trigeminal nerve as well.

### References


Correspondence and request for offprints to:
Georgios Mikrogeorgis
65, Pontou Str.
551 33 Thessaloniki, Greece
E-mail: gmicro@dent.auth.gr