

Lead poisoning after maxillofacial wound with gunshot: A clinical report

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The purpose of this study is to attract attention to lead poisoning after gunshot. Lead particles that were not removed from the patient's body may exert toxic effects on several organ systems. Therefore, such patients living with unremoved lead particles in their bodies must be warned about health control regularly.

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Key words: firearms, lead poisoning, maxillofacial injury.

INTRODUCTION

Lead poisoning is a serious disease, which, if it remains undetected, can lead to development delay and other sequels. Despite the absence of symptoms in the majority of patients carrying bullet fragments in their bodies, the possibility of lead poisoning should be kept in mind. Especially, retained bullets within or adjacent to large joints have been implicated as a cause of lead intoxication in several cases.¹⁻⁶ However, in case that removing bullets is believed to be more hazardous if they are left in the body. In addition, maxillofacial injuries due to gunshot cause serious damage to several tissues including skin, nose, eyes, other soft tissues and teeth. Dental intervention is generally delayed due to the priority given to surgery of other tissues. This makes the dental intervention more difficult.

The purpose of this study is to attract attention to these matters and to aid these kinds of patients.

CLINICAL REPORT

A 19 year-old woman was injured in 1991 (while she was 11 years old) from maxillofacial area by a gunshot. The first medical operation was carried out in Cukurova University Medical Faculty. Following the next operation in Ankara Numune Hospital, the patient was physically examined in GATA Plastic Surgery Department on March 10, 1999 and multiple soft tissue scars involving full face and 4 x 5 cm soft tissue depression distorting right nasolabial fold were detected. Any functional deficiency pertaining to the face was not found. Due to the detection of asymmetric and left deviation on the nostrils surgical operation was carried out.

On March 22, 1999 as the patient was sent to GATA Dentistry Oral Diagnosis Department her mouth were checked and her mobile teeth were determined to extract. Therefore she was directed to Prosthetics Department. As a result of inner mouth examination which is supported via panoramic, cranium and periapical graphics (Figs. 1, 2, 3) there found impacted left premolars, bone deficiency on the right maxillary

central tooth, so forth extraction of the right maxillary central tooth was determined from prosthetic point of view. Although there were whole left teeth on the maxilla of the patient, the right maxilla happened to be edentulous. As for the right mandible, orthodontic problems occurred relevant to the early loss of primary premolars. For providing both the lost occlusion and the eruption of impacted premolars on the right mandible, orthodontic treatment was started by bracing lower teeth.



Figs. 1-3. Panoromic and crano graphies.

The edentulous right maxilla with full teeth resulted in a negativity for the stabilization and the retention of the prosthetics. So the patient was evaluated from implantation respect with the mere solution of such problems of our ages.

Since the systemic diseases are contraindicated for implants, implantation treatment was not selected. The extracted teeth, lead levels in the blood and urine were sent to GATA Toxicology Department for being checked with the consideration and apprehension of many lead particles in the maxillofacial area might cause the chronic lead poisoning, and the following results were acquired (Table 1).

Table 1. Patient's lead levels.

	Normal	Result
Blood	250 ng/mL	720 ng/mL
Urine	0.884 µg/mL	1.394 µg/mL
Tooth	1.939 µg/mL	71.965 µg/mL

After this analysis, as occasional abdominal cramps, nausea, lethargy in hands and headache occurred in

the patient, she was sent to internal diseases department as to investigate the lead poisoning symptoms found, in addition to the prosthetics and orthodontics treatment had been applied.

The contemplated implantation for the patient was halted at least for present, and upper removable Partial Prosthetics was decided. As to be able to use opposite arch stabilization, the left upper second premolar and the first molar were crowned and aimed to apply Bonwill clasp. After known prosthetics procedures the removable partial prosthetics was applied to maxilla.

DISCUSSION

It has come out once again that the early diagnosis and treatment would be more helpful and easier. The dentist's intervening to the case in time with the purpose of preventing both difficult and huge financial solutions is of great importance for all kind of tooth and occlusion loss particularly in maturing age.

For being able to decide whether the lead particles inside the alveolar ridge and soft tissue will effect the dental implantation or not, a detailed research is required. Within the detected lead levels; high lead level in the teeth is a result of dental arch's been directly affected from the shotgun. Lead toxicity may present with many systemic symptoms such as irritability, nausea, abdominal and joint pains, lethargy and muscle weakness which are easily recognized. In our case, there is a close relationship between lead toxicity and lead levels pertaining to the amount available in the body.

In recent studies about this subject, it has been stated that hypertension gut, chronicle kidney disorders depression and congestive heart problems are among the most common symptoms as well.

It is understood that tolerable lead particles not removed from the body in the early years, might cause toxic effects in the following years. This reveals the fact that these particles are not inert; therefore the subject must be investigated from this respect as well. The patients must be warned that the overlooked lead particles might affect the system and periodical checks must be done without delay.

As to accomplish a vast research on the case, which requires the investigation of other patients who have unremoved lead particles inside the body, studies have been initiated. But for enabling to take the attention of interested people to the subject, this article was presented without waiting the results of this firearm injury case.

CONCLUSION

Since removing lead particles from the body after firearms injuries, causes more damages, most of them are left in the body. Even though these lead particles are not toxic early years, it is not known what kind of effects will be seen in the following years. There are lead particles in the patient's maxillofacial area and alveolar ridge. Firstly from functional and esthetical respect, removable partial denture was applied to the patient. The extracted teeth, blood and urine samples of the patient were tested and chronicle lead poisoning symptoms were detected. It can be concluded that, lead particles that were not removed from the patient's body may exert toxic effects on several organ systems. Therefore, such patients living with unremoved lead particles in their bodies must be warned about health control regularly.

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