



F3 Retained Bullet Fragments in the Maxillofacial Region

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After attending this presentation, the attendees will recognize the radiographic appearance of bullet fragments in the maxillofacial region, obtain relevant history in a living subject, recognize the current and possible future morbidity associated with the condition, and be cognizant of the management challenges and options in the living subject.

Conflict and the use of ballistic projectiles including guns is an all-too-frequent occurrence in the society in which we live. Crime solving and management of injuries and the resultant complications is a complicated process. The proximity of vital, special sensory structures, the brain, and the gnathic apparatus makes this process a veritable challenge when the incident involves the head and neck. This presentation will impact the forensic science community by bringing about an awareness of potential injuries to the facial skeleton, soft tissues, and teeth. In addition, the presentation will also describe implications of ferromagnetic effect of retained bullet fragments on specialized imaging procedures.

It is proposed that forensic odontologists, oral and maxillofacial radiologists, head and neck surgeons, and dental surgeons recognize the implications of retained bullet fragments in the facial region and plan investigations, intervention, and reconstruction, while bearing in mind the potential complications.

Synopsis of Content: Three cases of gunshot injuries demonstrating the radiographic presence of retained bullet fragments as noted on panoramic X-rays are presented.

Case 1: A 30-year-old male presented to the dental department with a need to replace his maxillary obturator appliance because it was ill fitting and frequently dislodging from the palate. He had borne a gunshot to his face in 1996. He had undergone several surgical corrections of resulting facial deformities. The injury had laid him legally blind and with episodes of memory loss. The panoramic radiograph showed numerous, discrete, opaque, metal fragments of varying size and shape on the right side overlying the anterior ramus, condyle, disintegrated right maxilla, as well as in the left pterygoid space, and superimposing over the left orbit.

Case 2: A 46-year-old male presented to the dental department for consultation about his teeth. Intraoral examination revealed that he occluded only on two teeth. His history was significant for a gunshot wound that he had endured approximately 20 – 25 years ago. He had then declined reconstruction of his jaw and teeth. Apparently, at that time, he was too overwhelmed with his situation as well as the number of surgeries that he was subjected to, to care about his dentition. Regretting that decision, he was now interested in getting his teeth “repaired.” A panoramic radiograph showed numerous bullet fragments within the soft tissue of the right face and pterygomandibular and infratemporal space. The right mandible was fragmented, partially resorbed and the replacing soft tissue was peppered with opaque bullet fragments. Some pieces were also seen within the right upper neck.

Case 3: A 50-year-old male presented for oral rehabilitation and replacement of missing teeth. His history was significant for three gunshot injuries to the face in 2008. The patient’s right eye was lost. A panoramic radiograph revealed efforts at reconstructing the right and left maxilla, left palate, and floor of the orbits. His left coronoid process of the mandible was lost and several opaque bullet fragments were noted within the left maxillary antrum as well as in the left infratemporal space.

The implications following the incident, including trauma, disfigurement, fragmentation of the dento-maxillofacial apparatus, soft tissue injury, potential for infections, proximity to or involvement of major blood vessels with the potential for hemorrhage as well as the ferromagnetic interference while imaging, implications of nerve injury, elevated blood levels of lead, and the moving bullet syndrome, are discussed.

General Statement of Conclusion: Gunshot injuries and resultant retained bullet fragments present with life-threatening complications. Several special sensory organ structures, large vascular channels, neuronal tissue, teeth, the spine, as well as soft tissue lie in the potential path of the bullet fragments. Investigation and management of head and neck gunshot wounds are very complicated and challenging procedures. An interdisciplinary approach in a specialized trauma center is warranted.

Gunshot, Fragment, Maxillo-Facial