

Case Report

Fatal Hemorrhage Following Extraction of First Molar

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Abstract

A case involving extraction of right upper 1st molar leading to massive hemorrhage and death in an undiagnosed case of Arteriovenous Venous Malformation of maxilla is presented along with the relevant investigations, standard treatment to be given and the related medicolegal issues. A 16 year old male presented to a dentist with history of Grade III mobility of right upper 1st molar without any known etiology. The dentist extracted the tooth without properly assessing the patient clinically and advising any relevant investigations thereby leading to massive hemorrhage and death of the patient. Proper clinical assessment, relevant investigations adequate treatment is to be given or the surgeon faces the risk of legal action for medical negligence under the provisions of Sec.304A of IPC. History taking, proper clinical examination, relevant investigations and adequate treatment are imperative in treating any case and in case of complications, the patient must be shifted to the ED of the nearest hospital without any delay.

Key Words: Tooth Extraction, Negligence, Precautions

Introduction:

List of complications related to tooth extraction is too long & varies from simple to severe. The life threatening intraoperative or postoperative hemorrhage is one of the few complications for which a dentist has to actively initiate a life saving treatment. A case of life threatening hemorrhage leading to death after extraction of first molar, the treatment initiated and the subsequent autopsy findings are presented along with the investigations to be done and the standard treatment to be given along with the medicolegal issues related to it.

Case report:

A 16 year old male presented to a dentist with history of pain and swelling on right side of face. On examination it was found that there was Grade III mobility of the right upper 1st molar (tooth number 16). There was no history of any past or present significant illness like coagulation disorders, liver disorders, prolonged hospitalization or medications. He was put on antibiotics and pain killers to reduce inflammation and swelling with instructions to report back after 5 days for tooth extraction.

Patient reported after 3 days with no decrease in the size of the swelling and was sent back with advice to continue medications for 2 more days.

Patient reported back after 2 days for extraction of the right 1st upper molar. Routine preoperative investigations were not done and the dentist planned to extract the tooth under LA. Local anesthesia with Inj. Adrenaline (1:80,000) was administered. A jet of blood started gushing out as soon as the tooth was out of the socket. The concerned dental surgeon tried to achieve hemostasis by compression followed by ice pack along with Inj. Ethamsylate 0.5 mg IM with no desired effect. The case was referred to the ED of a large tertiary level hospital and diagnosed as Arterio Venous Malformation. Bone wax and barrel bandaging along with blood transfusion was tried. However hemostasis could not be achieved and the patient was declared dead due to shock consequent upon blood loss.

The case was brought to mortuary. On general examination, it was seen that there were dried blood stains all over the body. The body looked pale. Gauze and wax packing along with antemortem blood clots were recovered from number 16 alveolar space. Size of the alveolar cavity was 1.5 cms in length, 1 cm broad and 3.5 cms in depth. Visceral organs were pale and no other abnormality was observed.

Discussion:

Though patients with tooth extraction may present with various post – extraction complications but death following extraction is rare. It is imperative on the part of the doctor to take maximum precautions before, after and during any dental procedure.

Most cases of dental diseases are diagnosed by a proper clinical history and physical examination. [1] Radiological investigations are relevant in most dental

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diseases and the dentist is expected to advise as needed. However in an Indian scenario due to lack of infrastructure, there is limited access to radiological equipments like CT scan, MRI etc. Under such conditions, the importance of having a proper clinical history and thorough medical examination can never be undermined. In the above mentioned case, the concerned dentist neither took a proper clinical history or did a thorough clinical examination nor advised any routine investigation even though the patient presented with Grade III mobility of the tooth without any known etiology. Dental x-rays along with blood investigations like Hb%, BT, CT are important screening tests to detect hematological disorders and should have been advised before starting the dental extraction.

In view of history, examination & investigations for proper diagnosis & treatment of patient, several authors have devised various protocols that can be followed before starting any dental procedure. The advantage of having a definite standard protocol is that the whole process of diagnosis and treatment becomes systematized resulting in better patient care and less errors on the part of the doctor. Peterson et al had devised a protocol that may be followed before tooth extraction: [2]

1. Biographic Data: Name, Address, Age, Sex, Occupation & marital status etc are obtained.
2. Chief complaint and history:
3. Medical History: Any history of relevant diseases [Rheumatic heart disease, heart abnormalities, diabetes, liver diseases, tuberculosis, kidney trouble] are elicited.
4. Social and family medical histories: Prevalence of relevant diseases in the family, their socio economic status, any health related habits or addictions etc are to be investigated.
5. Review of systems: Different systems of body are to be examined to reveal undiagnosed medical conditions unknown to patient.
6. Physical examination of oral cavity & entire maxillofacial region is to be done.
7. Laboratory and radiographic examinations.

In this case, radiological study have shown little or no change, but CT scan may show the shape, extent & boundaries of lytic expansion of intraosseous AVM. [1, 3] MR study would have been best employed for characteristics of the lesion. [4] Angiography is currently the gold standard for determination of location and flow characteristics of vascular lesions. [5]

For management of small AVMs, surgeons advocate embolization of feeder

vessels in combination with intraosseous inj. of embolizing agents to permanently obliterate the lesion [6]. For large AVM, maxillectomy or mandibulectomy is the treatment of choice even though it is associated with significant disfigurement of the face. [7] If the patient presents with massive bleeding during extraction or post – extraction, local measures like digital pressure with gauze, bone wax etc are applied. If bleeding fails to stop, surgical ligation of the main feeder vessel (lingual, facial, internal maxillary or external carotid artery) is done.

Legal issues pertaining to such kind of cases:

In this case, doctor could be charged for negligence under Sec 304A IPC, in case of complaint. Sec 304A IPC states "Whoever causes the death of any person by doing any rash or negligent act not amounting to culpable homicide, shall be punished with imprisonment of either description for a term which may extend to two years, or with fine, or with both"[8].

Conclusion:

Though dental extraction is considered to be a minor surgical procedure, a few cases may present with life threatening complications including hemorrhage. Careful & relevant history taking, physical and dental examinations prior to dental procedures are a must to avoid intraoperative and post operative complications.

Oral & maxillofacial surgeon plays a crucial role in diagnosing & managing these emergencies in ED. Active bleeding which cannot be controlled by local measures in the dental office should be referred to the nearest hospital ED so that the airway can be secured and the hemorrhage managed appropriately.

References:

1. Niimi Y, Song JK, Berenstein A. Current Endovascular Management of Maxillofacial Vascular Malformations. *Neuroimag Clin N Am* 2007; 17: 223 – 237.
2. Peterson LJ, Ellis Edward, Hupp JR et al. Preoperative Health Status Evaluation. *Contemporary Oral and Maxillofacial Surgery*. 4th Ed, pp 2 – 10. Elsevier India, 2003.
3. Sakkas N, Schramm A, Metzger MC et al. Arteriovenous malformation of the mandible: A life – threatening situation. *Ann Hematol* 2007; 86: 409-13.
4. Remonda L, Schroth G, Ozdoba C et al. Facial Intraosseous Arteriovenous Malformations: CT and MR features. *J. Comput. Assist. Tomogr.* 1995; 19(2): 277 – 81.
5. Kademani D, Costello BJ, Ditty D et al. An alternative approach to Maxillofacial Arteriovenous Malformations with transosseous Direct Puncture Embolization. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2004; 97: 701 – 6.
6. Siu WW, Weill A, Garipey JL et al. Arteriovenous Malformation of the Mandible: Embolization and Direct Injection Therapy. *J Vasc Interv Radiol* 2006; 12(9): 1095 – 98.
7. Kacker A, Heier L, Jones J. Large Intraosseous Arteriovenous Malformation of the Maxilla – A case report with review of literature. *Int J Pedia Otorhinolaryngol* 2000; 52: 89 – 92.
8. Mallick M. *Criminal Manual*. pp 137. New Delhi: Professional Book Publications, 2004.