ABSTRACT:

Dental extraction are one of the most common procedures in dentistry, in particular oral surgery and may lead to various complication including hard tissue injuries.\textsuperscript{1,2}

Of the many iatrogenic intra operative complication that, can be caused to the patient during the procedure of tooth extraction, the one leading to the fracture of mandible is presented.

The purpose of this presentation is to make the Dental Surgeon aware & to exercise caution in the use of Winter’s cross bar elevator, which may lead to this disastrous complication.

Key words: Iatrogenic, Exodontia, intra operative complication, fracture of mandible, Winter’s cross bar elevator.

INTRODUCTION :-

“The first dictum of medicine and surgery is – Primum Non Curarum – first do no Harm”\textsuperscript{3}

Injuries to the patient by the operator can be caused unknowledgeable or due to sheer negligence, in both the instances, the patient suffers.

Certain principals govern the use of surgical instruments and they must be strictly adhered to. This case report describes injudicious use of elevator, during the course of tooth extraction, leading to fracture of mandible.

Case Report :-

A 35 year old female patient, was referred 2 days after a failed attempt of extraction of a grossly destructed due to Dental caries, lower right 2\textsuperscript{nd} mandibular molar, with additional complication of fracture of the body of mandible in that region.
Examination of the patient revealed abnormal mobility in the region of 47, with gingival laceration and clot in relation to the socket of 47.

The patient had severe pain and edema.

A periapical radiograph of the region along with an oblique lateral radiograph of the right side of the mandible was taken, which correlated with the clinical finding of fracture of mandible body with the presence of the mesial root of 47, fractured a few millimeter below the alveolar margin.

A fracture line extending from distal aspect of the mesial root apex to the inferior border of the mandible was evident.

The referring Dental Surgeon confided that the mishap had occurred during the course of extraction of the mesial root, using the Winter’s cross bar elevator.

The case was managed under cover of antibiotics by extraction of the retained mesial root, followed by reduction & fixation of the mandibular fracture, which healed uneventfully.

**DISCUSSION** :-

Fracture of mandible during routine extraction is fortunately, a rare complication and is under reported. The reasons for this are multifactorial, faulty surgical technique is one among them.\(^4\,^5\,^6\)

Elevators, also known as exolevers are instruments which makeup the basic armamentarium for the procedure of exodontia,\(^7\) hence the operator must be well versed with the rules governing their use.

The Winter’s crossbar or T bar handle elevators (figure 2) are designed for the removal of fractured mandibular molar roots. They are never used elsewhere other then for elevating of mandibular and maxillary 3rd molar impactions. This instrument can develop tremendous force which can lead to fracture of mandible.

Based on the wheel and axle principal, which is a modified form of the lever principal, the effort is applied to the circumference of a wheel which turns the axle so as to raise a weight, the greater the diameter of the wheel the more is the mechanical advantage. Hence each pound of pressure applied to the handle of the crossbar elevator is multiplied on an average 4 to 5 times depending upon the radius of the wheel, divided by the radius the axle.\(^8\)

The triangular shape Winter’s cross bar elevator is used when a broken root fragment remains in the mandibular tooth socket and the adjacent socket is empty, devoid of root. The elevator is placed in the empty socket, with the triangular tip facing the retained root to be removed. The shank and the handle are located the buccal side, the interradicular septum is engaged near the apex of the socket, care taken that the point of the elevator does not invade the mandibular canal. A rotary motion of the handle will cut through and delivered the interradicular septum. The elevator is positioned in a similar position, this time engaging the fractured root surface and a 2nd rotatory motion will delivered the root. These paired instruments are useful to remove fractured single roots either from the mesial or distal socket of the right or left side of the mandibular molars.

**CONCLUSION** :-

Intra operative mandibular fracture are considered to happen during the course of tooth extraction as a result of improper instrumentation and application of undue force to the bone in the face of resistant.\(^9\)

The risk of fracture can be minimized by accurate assessment of the difficulty of extraction and selecting the most appropriate surgical approach.\(^10\,^{11}\)

The dental surgeon should be well aware of this, potential complication of winter’s cross bar elevator and exercise caution during their use.
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