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Case Report

Iatrogenic fracture of right angle and left sub condyle in a 50 year old male: A case report

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ABSTRACT

Iatrogenic errors during exodontias includes trismus, alveolar osteitis, postoperative infection, hemorrhage, oro-antral communication, damage to adjacent teeth, displaced teeth, and fractures. While doing extraction chances of occurrence of fracture of mandible is fortuitously rare, but is under-reported. These fractures could occur in the intra-operative or postoperative period and can cause significant distress to the patient and the practitioner. This case report addresses the incidence of mandibular fracture in a 50-year-old male and various surgical treatment modalities and ways of prevention are discussed.

1. Introduction

Mandibular fracture after tooth removal is a rare, but major, complication. The multifactorial etiology for its occurrence include age, sex, degree of tooth impaction, dysthesia, nerve dysfunction, relative volume of the tooth in the jaw, pre-existing infection or bony lesions, failure to maintain a soft diet in the early postoperative period, and the surgical technique.[1] This uneventful incidence may occur, either operatively, as an immediate complication during surgery or postoperatively as a late complication, usually within the first few weeks post surgery. Postoperative fractures have been reported more than intra-operative fractures. The immediate mandibular fracture is a rare entity and is found in about 1/3 of the total extraction related mandibular fractures.[2] The most frequent presentation happens to be a cracking noise. Intra-operative fractures were more frequent among females, and differed from postoperative fractures.[3]

2. History

A patient named Hari Singh aged 50 year old male reported to department of Oral Medicine, Diagnosis and Radiology, Institute of Dental Education and Advance Studies, Gwalior, Madhya Praadesh with chief complaint of pain in lower left back jaw region since two months. Patient gives history of trauma to lower jaw due to uneventful extraction of lower left third molar two months back in a private dental clinic. Henceforth, lower jaw got fractured and pain commenced at same site since then. Pain was dull, continuous and non radiating in nature. Aggravates on chewing food and relieved on taking analgesics. Other dental history includes history of extraction in lower right and left back jaw region 2 years back. Medical history was non-contributory. Personal history includes khaini chewing 8 pouches per day for 10 years. Patient quit habit 3 months back. Patient gives

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history of bidi smoking 15 per day since 20 years. Extra oral examination revealed facial asymmetry due to unilateral diffuse swelling present on left lower one third of face of size 3.5 cm superior inferiorly extending from line joining left corner of mouth to inferior tragus of ear to 1.5 cm below left inferior border of mandible X 5 cm anterio posteriorly extending from line joining outer canthous of eye to inferior border of mandible to anterior border of ramus of mandible approximately. On palpation swelling was soft, compressible and tender. Tenderness was present on left masseteric muscle and left pre auricular region and right angle of mandible. Left submandibular lymphnodes were found tender on palpation. Hypoplastic mandible was present on left side (Figure 1). No step deformity was evident on inferior border of mandible on both sides. Intraoral examination revealed trismus.

Teeth present 18 17 16 15 14 13 12 11 21 22 23 24 25 26 27 36 35 34 33 32 31 41 42 43 44 45 46

Other hard tissue findings include generalized extrinsic stains and attrition. Grade I mobility was found in relation to 36 and supraeruption in relation to 17. On soft tissue examination an intraoral fistula was present buccally and distally in relation to 38 region (Figure 2). Other findings include hypermelanosis present on right and left buccal mucosa, palatal mucosa, maxillary and mandibular labial mucosa. Periodontal findings include generalized gingival recession and interdental pockets present. Furcation involvement was found in relation to 16 17 18 26 27 36 46. Patient was advised panaromic radiograph. Radiographic investigation revealed linear radiolucent line at right angle of mandible extending up to inferior border of mandible and solitary oblique radiolucent line evident and left subcondyle (Figure 3). Diagnosis was given as fracture of right angle and left subcondyle. Other diagnosis given were smoker's melanosis, chronic generalized periodontitis and partially edentulous mandibular arch. Patient was referred to department of oral surgery for further intervention.

3. Discussion

Surgical removal of third molars is often accompanied by minor and major complications. Incessant and frequent postoperative events are edema and swelling of the soft tissues and pain. Iatrogenic fracture or luxations of the second molar and locked trismus are rare complications.[4] There are multiple factors that play an important role in influencing the occurrence of complications after third molar removal. The major influential factors include age, gender, medical history, oral contraceptives, presence of pericoronitis, cysts, tumors, osteolytic lesions, osteitis or osteoporosis, poor oral hygiene, smoking, type of impaction, relationship of third molar to the inferior alveolar nerve, surgical time, surgical technique surgeon experience, use of perioperative antibiotics, topical antiseptics, intra-socket medications and

Fig. 1: Clinical photograph of patient showing facial asymmetry due to unilateral diffuse swelling on left lower one third of face

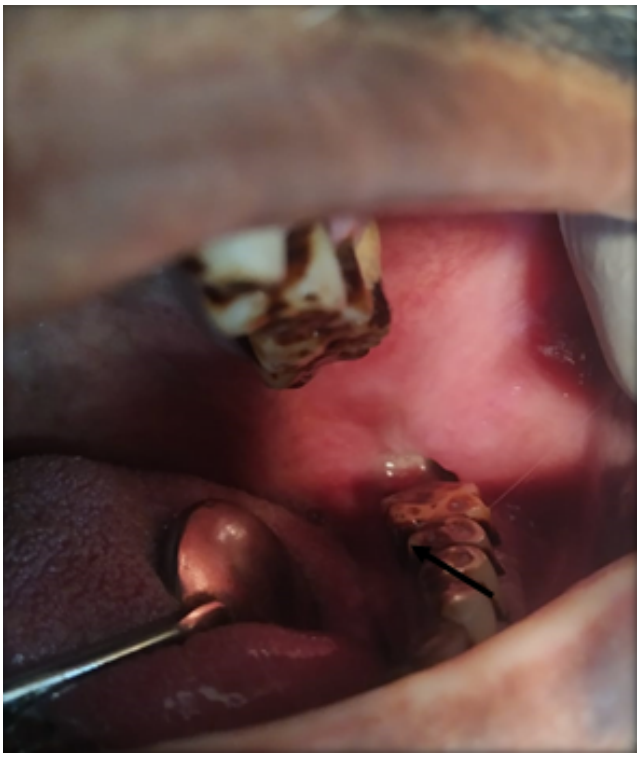

Fig. 2: Intraoral photograph showing sinus tract in 38 region

Fig. 3: Panaromic radiograph revealing fracture of right angle and left subcondyle

anesthetic technique.[5] Male patients over 4^{th} decade of life with full set of permanent dentition are considered to be at a higher risk for mandibular fracture. Our patient was a 50-year-old male. As one ages there is decrease in elasticity of bone resulting in weakening of the mandible and this may lead to higher incidence of fractures reported among patients over 40 years of age at the time of surgery. There is correlation between gender and biting force. In general males, show higher levels of biting force as compared to females and are more susceptible to mandibular fractures, following surgical extraction. Patients with full set of dentition, produce acme levels of biting forces, that are transmitted to the weak mandible during mastication and consequently the risk of fracture is high, regardless of gender.[6]

The level of tooth impaction is also an important factor. For surgical extraction of fully impacted teeth greater volume of bone is required to be removed and thus it leads to higher incidence of mandibular fracture. In order to minimize bone removal sectioning of the tooth can be done.[7] Another salient factor is the relative space occupied by the third molar out of the bucco-lingual area of the mandible. A preoperative computed tomography with bucco-lingual reconstruction program is required to evaluate this ratio and thus used for evaluation of the proximity between an impacted tooth and the adjacent anatomic structure, such as mandibular canal, maxillary sinus, prior to the extraction. Evaluation of relative tooth volume is further done. Special care is recommended during the surgical procedure if the ratio is 50% and above as the risk is high.[8] Wagner et al. reported higher incidence of fractures on the left side of the patient over the right side. Better visualization and control of the applied force by the surgeon on the right side of the patient as compared to the left side was found to be responsible factor.[9]

The present case is also of left subcondylar fracture. It is difficult to establish the true prevalence of postoperative mandibular fractures secondary to uneventful extraction as there are reports on postoperative traumatic mandibular fractures that could have happened with an intact mandible, and the occurrence of the two conditions may be mere a coincidence. The incidence of condylar fractures is high, but the management of fractures of the mandibular condyle continues to be controversial. Condylar fractures may be intracapsular or extracapsular, deviated, undisplaced, displaced or dislocated. Maxillomandibular fixation, external fixation, and surgical splints with internal fixation systems are commonly employed techniques used in the treatment of the fractured mandible. This is done in order to reconstruct the shape and achieve the function of the uninjured status.[10]

Attributing factors in treatment are age of the patient, the co-existence of other mandibular or maxillary fractures, whether the condylar fracture is unilateral or bilateral, the level and displacement of the fracture, the state of dentition and dental occlusion and the surgeon competence. An accurate diagnosis, appropriate reduction and rigid fixation are required in order to prevent complications.[11] Long-term complications such as malocclusion, particularly open bite, reduced posterior facial height, and facial asymmetry in addition to chronic pain and mobility limitation should be taken into consideration. Shortening of the ramus on the affected side and deviation of the chin to the affected side are characteristics of condylar fractures. Noticeable features on the unaffected side are open bite and flattening of the body of the mandible.[12]

Our patient also has hypoplastic mandible on right side. Improper instrumentation and uncontrolled excessive force transmission to the mandibular bone leads to immediate operative iatrogenic bilateral fractures of the condyle, posterior displacement of the mandible is seen with an anterior open bite, may occur. It is more likely to occur with young or less experienced professionals, as the present case was mishandled by inexperienced clinician.[13] During the second or third postoperative week postoperative or late fractures usually occur. This presumably occurs as a result of high level of biting forces during mastication, when the patient was feeling better. If operator hears a cracking noise he/she should be alarmed to a possible fracture, even if initially the fracture is radiologically undetectable.[14]

4. Conclusion

The left side of the patient is at higher risk for immediate fracture. It is possible to reduce the risk of this complication by adoption of preventive measures. It is essential for dental practitioner to assess the surgical difficulty of mandibular third molar extraction while formulating a treatment plan because it helps him/ her to assess their own competence for the particular operation and thereby minimizing complications and optimizing patient preparation.

5. Source of Funding

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6. Conflict of Interest

None.

References

1. Iizuka T, Tanner S, Berthold H. Mandibular fractures following third molar extraction. A retrospective clinical and radiological study. *Int J Oral Maxillofac Surg*. 1997;26(5):338–81. doi:10.1016/s0901-5027(97)80793-x.
2. Krimmel M, Reinert S. Mandibular fracture after third molar removal. *J Oral Maxillofac Surg*. 2000;58(10):1110–2. doi:10.1053/joms.2000.9566.
3. Turvey TA. Midfacial fractures: a retrospective analysis of 593 cases. *J Oral Surg*. 1977;35(11):887–91.
4. Mathog RH, Toma V, Clayman L. Nonunion of the mandible: an analysis of contributing factors. *J Oral Maxillofac Surg*. 2000;58(7):746–52. doi:10.1053/joms.2000.7258.
5. Mitchell DA. A multicentre audit of unilateral fractures of the mandibular condyle. *Br J Oral Maxillofac*. 1997;35(4):230–6. doi:10.1016/s0266-4356(97)90038-3.
6. Mathog RH, Boies LR. Nonunion of the mandible. *Laryngoscope*. 1983;87(7):908–20. doi:10.1288/00005537-197607000-00003.
7. Hansson T, Nilner M. A study of the occurrence of symptoms of the temporomandibular joint masticatory musculature and related structure. *J Oral Rehabil*. 1975;2:313–324.
8. Champy M, Lodde JP, Schmitt R. Mandibular osteosynthesis by miniature screwed plates via a buccal approach. *J Maxillofac Surg*. 1978;6(1):14–21. doi:10.1016/s0301-0503(78)80062-9.
9. Wagner A, Krach W, Schicho K, Undt G, Ploder O, Ewers R. A 3-dimensional finite-element analysis investigating the biomechanical behavior of the mandible and plate osteosynthesis in cases of fractures of the condylar process. . *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2002;94(6):678–86. doi:10.1067/moe.2002.126451.
10. Ellis IE, Throckmorton GS, Palmieri C. Open treatment of condylar process fractures: assessment of adequacy of repositioning and maintenance of stability. *J Oral Maxillofac Surg*. 2000;58(1):27–34. doi:10.1016/s0278-2391(00)80010-5.
11. Moreno JC, Fernandez A, Ortiz JA. Complication rates associated with different treatments for mandibular fractures. *J Oral Maxillofac Surg*. 2000;58(3):273–80. doi:10.1016/s0278-2391(00)90051-x.
12. Santler G, Kärcher H, Ruda C, Köle E. Fractures of the condylar process: surgical versus nonsurgical treatment. *J Oral Maxillofac Surg*. 1999;57(4):392–9. doi:10.1016/s0278-2391(99)90276-8.
13. Marker P, Nielsen A, Bastian HL. Fractures of the mandibular condyle. Part 2: results of treatment of 348 patients. *Br J Oral Maxillofac Surg*. 2000;38(5):422–8. doi:10.1054/bjom.2000.0457.
14. James RB, Fredrickson C, Kent JN. Prospective study of mandibular fractures. *J Oral Surg*. 1981;39(4):275–81.

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