European Journal of Molecular & Clinical Medicine
ISSN 2515-8260 Volume 07, Issue 5, 2020

Approaches Of Midface Fracture-Review

Dr.Tharani.P[1],Dr.Vijay Andrew Ebenezer[2],Dr.Balakrishnan[3]

(*Post graduate,Department Of Oral And Maxillofacial Surgery ,Sree Balaji Dental College And Hospital,Chennai)[1]*

(Head Of The Department,Prof,Department Of Oral And Maxillofacial Surgery ,Sree Balaji Dental College And Hospital,Chennai)[2]

(Prof,Department Of Oral And Maxillofacial Surgery ,Sree Balaji Dental College And Hospital,Chennai)[3]

Department – Oral and Maxillofacial surgery
Sreebalaji dental college and hospital
Pallikaranai , Chennai – 100

Mail.id:pmht1703@gmail.com

Abstract:
Fractures of the mid face pose a medical complication for the their socio - economic impact, complexity ,frequency. Inter disciplinary approaches and up-todate diagnostic and surgical techniques provide favourable results in the majority of cases though. Traffic accidents are lead to trauma mostly in male patients Treatment algorithms for nasal bone fractures, maxillary and zygoma fractures are widely agreed lead to trauma in frontal sinus and orbital .As for the fractures of the frontal sinus a strong tendency towards minimized approaches can be seen. Obliteration and cranialization seem to decrease in numbers. Some critical remarks in terms of high dose methyl prednisolone therapy for traumatic optic nerve injury seem to be appropriate.

Keywords: zygoma,maxilla, mandible,trauma.

Introduction: Midface trauma leads to laceration,fracture of zygomatic ,maxilla,zygomatic bone ,spenoidal bone etc. Patients with midfacial fractures who do not undergo successful or appropriate treatment may suffer from significant long-term consequences such as disfiguring scars, bony deformities, or even loss of vision [4]. Relevant emotional and psychological problems may result from trauma[5],[6]. The successful treatment and rehabilitation of patients with anatomy, fractures, and techniques of osteosynthesis. Intraoperative cone beam radiographs and pre shaped titanium mesh implants for orbital reconstruction are new techniques and essential aspects in midface traumatology. The main focus is placed on bony injuries. Lesions of these of tissue are mentioned only if they are important for the respective pattern of injury. [1],[2].

Approaches
The individual approach depends on the underlying fracture: a transoral approach, transconjunctival incisions, an intra nasal approach, or a transcutaneous approaches may be appropriate [13],[18]. The access is chosen for optimal overview to facilitate reposition and osteosynthesis. Those approaches are mainly the transconjunctival and intra oral incisions that are some times technically challenging and need more time than the traditional transcutaneous and trans facial incisions [13], [22] . The broad acceptance of rigid endoscopes for visualization of complex anatomical relations, especially in sinus surgery of inflammatory diseases, led to basic changes of the

approaches and the surgical techniques also in traumatology. The objective is always to achieve atleast equivalent results of reconstruction with simultaneously lower morbidity.

Incision/approach Exposition/presentation

Incision/approach	Exposition/presentation
1. TRANS / INTRA ORAL APPROACH	
Superior vestibular sulcus incision(OSI)	Le fort 1 level Facial wall of maxillary sinus Zygomaticoalveolar crest Inferior nasal aperture Nasal floor and septum
2. TRANS CONJUNCTIVAL INCISIONS	
A. Inferior fornix	Inframedio orbital walls
B. Trans/pre caruncular	Medial orbital wall
C. Retro canthal	Lateral orbital wall
Combination of the above	Inferior circumference of internal orbit
Lateral canthotomy	Inferior circumference of internal orbit 210°
3. INTRA NASAL	Pterygoid cartilage Septum Nasal bridge
4. TRANSCUTANEOUS	
ANTERIOR	
Sub ciliary Infra orbital incision	Infraorbital Medio inferio lateral orbital walls
Lateral eyebrow incision	Frontal bone pillar Supero lateral orbit
Modified superior blepharoplasty incision	Frontal bone pillar lateral orbital wall zygomatico sphenoid suture
Glabella incision	Frontal sinus Nose Supra orbital region Medio superior orbital walls Ethmoid and medial canthal structures
POSTERIOR	
	Temporo parietal region infero orbital walls

Coronal incision With extension in pre or retro auricular direction	Ethmoid and medial canthal structures Frontal sinus Nose Supra orbital region Superior circumference of the internal orbit about 300°

PRINCIPLES OF SURGICAL TREATMENT

The surgical reposition of fractures and osteosynthesis of patients with mid facial fractures is typically performed under general anaesthesia. duration of surgery performed in order to secure the occlusion. So it may be necessary to change the position of the tube during surgery from a nasal to an oral position or vice-versa. The treatment of a patient's fracture wit h a midfacial trauma is usually performed in supine position [22]. In cases of intraoperative navigation, fixation of the head may be necessary [31].

Classification of Naso ethmoidal fracture according to Markowitz	
Central fragment, adhering to the canthal ligament	Therapy : fixing the fragment in position
Fracture consisting of several fragments	Fixing of fragment with adhering canthal ligament
Fracture consisting of several fragments , detached canthal ligament	Fixing the canthal ligament with sutures to fix bone or an osteosynthetic plate

In the context of surgical therapy of midfacial fractures, standard surgery sets are used. They are completed by specific osteosynthetic material [13], [32]. It consists of typical mini- and micro-plates of different shapes with according osteosynthesis screws of different length [33]. Absorbable osteosynthetic For naso - ethmoid fractures, absorbable materials are not established up to now. There is currently no literature allowing a comparison to titanium systems. In pediatric fractures they are applied in selected cases [38]. The arguments against absorbable materials are well known and yet undisputed. Generally, the bone fragments should be repositioned in their anatomically correct position and secured safely. The objective is the reconstruction of the form and function of the midface, as atraumatic as possible [42],[43],[44]. There construction of the correct occlusion is one of the most important objectives of surgical treatment of midfacial fractures affecting the teeth-bearing parts of the mid face [45]. Hence, in many cases atleast a temporary mandibulomaxillary fixation (MMF) via orthodontic arch wire plastic splint. Basically, however, the plates are positioned alongside the horizontal and vertical pillars of the midface. For osteosynthesis, generally mini - and micro-plates are applied that are fixed with mono cortical osteo synthetic screws. There position and osteosynthesis of an extended midfacial fracture generally starts with there construction and securing of the occlusion After that, after mandibulo-maxillary fixation of the correct occlusion, the central parts of the midface [13]. Each wrong positioning of the bony structures in the area of the mid face leads to in harmonic appearances of the facial soft tissue and thus to poor esthetical results. Additionally, massive functional disturbances such as impaired occlusion or vision may be the consequence.

Conclusion: Midface fractures are commonly encountered in the emergency department. A secure airway and control of bleeding is vital before initiating further examination and workup. Le Fort fractures rarely abide by the original classification scheme and are often asymmetric with varying degrees of comminution. The primary goal of reconstruction of the midface is dental occlusion that can be accomplished with intermaxillary fixation while anatomical Reconturing is achevied by orif.

REFERENCES:

1. MaierH, TischM, Lorenz KJ, Danz B, Schramm A. Penetrating injuries in the face and neck region. Diagnosis and treatment.HNO.2011Aug;59(8): 765- 82.DOI: 10.1007/s00106-011-2349-1
2. Frodel JLJr. Avoiding and correcting compl ications
in peri nasal trauma. Facial PlastSurg. 2012Jun;28(3):323-32. DOI: 10.1055/s-0032-1312697
3. AlviA, DohertyT, LewenG. Facial fractures and concomitant injuries in trauma patients. Laryngoscope .2003Jan;113(1): 1026.DOI:10.1097/00005537- 200301000-00019
4. Buchanan EP, Hopper RA, Suver DW, Hayes AG,
Gruss JS, Birgfeld CB. Zygomatico maxillary complex fractures and their association with naso-orbitoethmoid fractures: a5-year review. Plast ic and Reconstruction Surg.2012Dec;130(6): 1296304.DOI10.1097/PRS.0b013e31826d1643
5. WaltersJT, BissonJI, ShepherdJP. Predicting post - traumatic stress disorder: validation of the Trauma Screening Questionnaire in victims of assault. Psycho l Med.2007Jan;37(1): 143-50.DOI: 10.1017/ S0033291706008658
6. Bisson JI, Shepherd JP. Psychological reactions of victims of violent crime. Br J Psychiatry. 1995Dec;167(6): 718-20.DOI: 10.1192/ bjp.167.6.718
7. Motamedi MH. An assessment of maxilla facial fractures:a 5 year study of 237 patients.JOralMaxillofacSurg.2003 Jan;61(1): 61- 4.DOI:10.1053/joms.2003.50049
8. Motamedi MH,Dadgar E,EbrahimiA ,ShiraniG, HaghighatA, Jamalpour MR.Pattern of maxilla facial fractures :a 5-year analysis of 8,818 patients. J
Trauma Acute Care Surg. 2014 Oct;77(4): 4.DOI:10.1097/TA.0000000000000369
9. MartinezAY, ComoJJ, VaccaM, NowakMJ, ThomasCL, Claridge JA. Trends in maxilla facial trauma: a comparison of two cohorts of patients at a single institution 20 years apart. J Oral Maxillo fac Surg.2014 Apr;72(4):750- 4.DOI:10.1016/j.joms.2013.11.018
10. Van Beek GJ, Merkx CA. Changes in the pattern of fractures of the maxilla facial skeleton. IntJOralMaxillofacSurg.1999 Dec;28(6):424- 8.DOI:10.1016/S0901-5027(99)80055-1
11. BonkowskyVM,MangWL,WendlF,FrankC. Neurologic
complications in mid-face fractures: 539- 42.DOI:10.1055/s-2007-998395
12. Hollier LH Jr, Sharabi SE , Koshy JC, Stal S. Facial trauma: general principles of management. JCranio fac Surg.2010 Jul;21(4):1051- 3.DOI:10.1097/SCS.0b013e3181e5701c
13. MastG,EhrenfeldM,CorneliusCP Maxillo facial fractures: midface and internal orbit.Part2: therapeutic options. Feb;115(2):145-63. DOI:10.1007/s00113-011- 2111-x
14. GentileMA, Tellington AJ, Burke WJ, Jaskolka MS. Management of mid face maxilla facial trauma. Atlas Oral Maxillo fac Surg Clin North Am. 2013Mar;21(1): 69-95.DOI: 10.1016/j.cxom.2012.12.010
15. ClauserL,DalleraV,SartiE,TieghiR. Fronto basilar fractures in children. Childs NervSyst.2004Mar;20(3):168-75.DOI: 10.1007s00381-003-0868-0
16. RasseM.SpezielleTraumatologie.In:HausamenJE,Reuth er JF, EufingerH,KüblerA,SchliephakeH,eds.Mund-,Kiefer –und Gesichtschirurgie.4ed.Berlin,Heidelberg,NewYork:Spr inger; 2012.p.239-83.DOI:10.1007/978-3-642-17801-6_9
17. HardtN,KuttenbergerJ.CraniofacialTrauma.Berlin,Heid elberg, NewYork:Springer;2010. DOI:10.1007/978-3-540-33041-7
18. CampbellCA,LinKY.Complicationsofrigidinternalfixat ion. CraniomaxillofacTraumaReconstr.2009Mar;2(1):41- 7.DOI: 10.1055/s-0029-1202596 20.

19. ZinggM,LaedrachK,ChenJ,ChowdhuryK,VuilleminT,S utter F,RavehJ. Classification and treatment of zygomatic fractures: a review of 1,025 cases. J Oral Maxillo facSurg.1992 Aug;50(8): 778-90.DOI:10.1016/0278-2391(92)90266-3
20. Experimental study on lower jaw fractures I,II,III.RevChirParis.1901;23:208.
21. KochharA,ByrnePJ. Surgical management of complex midfacial fractures. Otolaryngol Clin North Am.2013Oct;46(5):759-78.DOI:10.1016/j.otc.2013.06.002
22. MuellerR. Endoscopic treatment of facial fractures. Facial Plast Surg.2008Jan;24(1):78-91.DOI:10.1055/s-2008-1037452
23. Chadha NK, Repanos C,Carswell AJ. Local anaesthesia for manipulation of nasal fractures :systematic review .J Laryngol Otol.2009Aug;123(8):830-6.DOI: 10.1017/S002221510900560X
24. RobionyM, TenaniG, BelliniP,SalgarelliAC.Intra oral approach for aesthetic restoration of post traumatic zygomatic arch deformities .JCraniofacSurg.2012Sep; 23(5):1418- 20.DOI: 10.1097/SCS.0b013e3182566597
25. KrishnanB, ElSheikhMH. Dental forceps reduction of depressed zygomatic arch fractures. JCraniofacSurg.2008May;19(3):7824.DOI:10.1097/SC S.0b013e31816ae332
26. LockR. Managing the difficult airway in cranio maxillofacial trauma. Cranio maxil lofac Trauma Reconstr. 2010 Sep;3(3) :1519. DOI:10.1055/s-0030- 1262958 44.
27. LeeSS, Huang SH, WuSH, SunIF, ChuKS,LaiCS,ChenYL. A review of intra operative airway management for mid face facial bone fracture patients. Ann Plast Surg.2009Aug;63(2):162-DOI:10.1097/SAP.0b013e3181855156
28. LimaSMJr, AsprinoL, MoreiraRW, deMoraesM. A retrospective analysis of submental intubation in maxilla facial trauma patients. JOralMaxillofacSurg.2011Jul;69(7):2001-5. DOI: 10.1016/j.joms.2010.10.017
29. Jundt JS, Cattano D, Hagberg CA, Wilson JW. Submental intubation: a literature review. Int J Oral Maxillofac Surg. 2012 Jan;41(1): 46-54. DOI:10.1016/j.ijom.2011.08.002
30. GeleskoS, Markiewicz MR, Bell RB. Responsible and prudent imaging in the diagnosis and management of facial fractures. Oral Maxillo fac Surg Clin North Am.2013Nov;25(4):545-60. DOI:10.1016/j.coms.2013.07.001
31. Evans GR, Clark N, Manson PN, Leipziger LS. Role of mini-and microplate fixation in fractures of the mid face and mandible. AnnPlastSurg.1995May;34(5):453- 6.DOI: 10.1097/00000637-199505000-00001
32. Meslemani D, Kell man RM. Recent advances in fixation of the cranio maxilla facial skeleton. Curr Op in Otolaryngol Head Neck Surg.2012Aug;20(4): 304- 9.DOI: 10.1097/MOO.0b013e3283543a9d
33. Avashia YJ, Sastry A, Fan KL, Mir HS ,Thaller SR. Materials used for reconstruction after orbital floor fracture. J Craniofac Surg. 2012Nov;23(7Suppl1): 1991-7.DOI: 10.1097/SCS.0b013e31825
34. Turvey TA, Proffit WP, Phillips C. Bio degradable fixation for cranio maxilla facial surgery: a10-year experience involving 761 operations and 745 patients. Int J Oral Maxillo fac Surg.2011 Mar;40(3):244 9.DOI:10.1016/j.ijom.2010.11.024
35. Dingman RO, Grabb WC , Oneal RM. Management of injuries of the naso-orbital complex. Arch Surg.1969 May;98(5):566-71. DOI: 10.1001/archsurg. 1969. 01340110058003
36. Reichwein A, Schicho K, Moser D, See mann R, Poesch lP, Bau mann A, EwersR. Clinical experiences with resorbable ultrasonic-guided, angle-stable osteosynthesis in the pan facial region. JOralMaxillofacSurg.2009Jun;67(6): 1211-7.DOI: 10.1016/j.joms.2008.12.033
37. Cornelius CP, Gellrich N, Hillerup S, KusumotoK, Schubert W, Fusetti S. AO Surgery Reference .2013. Available from https://www2.aofoundation.org/wps/portal/surgery
38. Perioperative Antibiotic prophylaxis . Available from :http://www.awmf.org/leitlinien/detail/ll/029 -022.
39. Anti microbial prophylaxis for surgery. Treat Guidel MedLett. 2006Dec;4(52):83-8. 57. Classen DC, Evans RS, Pestotnik SL, Horn SD, Menlove RL, Burke JP. The timing of prophylactic administration of antibiotics and the risk of surgical -wound infection. N Engl J Med.1992 Jan;326(5): 281-6. DOI:10.1056/ NEJM199201303260501
40. Lauder A, Jalisi S, Spiegel J, Stram J, Devaiah A. Antibiotic prophylaxis in the management of complex mid face and frontal sinus trauma. Laryngoscope. 2010Oct; 120(10): 1940-5.doi:10. 1002/lary.21081

41. Hauser CJ, Adams CA Jr, Eachempati SR; Council of the Surgical Infection Society. Surgical Infection Society guide line : prophylactic antibiotic use in open fractures: an evidence-based guideline. Surg Infect(Larchmt).2006Aug;7(4):379-405.DOI: 10.1089/sur.2006.7.379
42. Sandner A, Kern CB, Bloching MB. Experiences with the sub frontal approach to manage extensive fractures of the frontal skull base.Laryngorhinootologie.2006Apr;85(4): 265- 71.DOI:10.1055/s2005-921056
43. Raveh J, Vuillemin T. The surgical one-stage management of combined cranio-maxillo-facial and fronto basal fractures. Advantages of the sub cranial approach in 374 cases. J Cranio maxilla fac Surg.1988May;16(4):160-72.DOI: 10.1016/S1010- 5182(88)80042-8
44. Hosemann W, Schroeder HW, Kaduk W, Augst D, Friedrich J. Inter disciplinary management of severe mid facial trauma NO. 2005May;53(5):479- 99.DOI:10.1007/s00106-005-1241-2
45. Han DS, Han YS, Park JH. A new approach to the treatment of nasal bone fracture: radiologic classification of nasal bone fractures and its clinical application. J Oral Maxillo fac Surg.2011 Nov;69(11):2841-7.DOI:10.1016/j.joms.2011.01.013
46. AtighechiS, KarimiG. Serial nasal bone reduction: a new approach to the management of nasal bone fracture. J Craniofac Surg.2009Jan;20(1):49-52. DOI: 10.1097/SCS.0b013e318190def5
47. Wright RJ, Mura kami CS, Ambro BT. Pediatric nasal injuries and management. Facial Plast Surg. 2011 Oct;27(5): 483-90.DOI: 10.1055/s-0031-1288931
48. Gharehdaghi J, Samadi Rad B, Ghatreh Samani V, Kolahi F, Khatami Zonoozian A, Marashian SM. Comparison of physical examination and conventional radiography in diagnosis of nasal fracture. Indian J Oto laryngol Head Neck Surg. 2013 Aug;65(Suppl2):304-7.DOI:10.1007/s12070-011-0453.
49. Rhee SC, Kim YK, Cha JH, Kang SR, Park HS. Septal fracture in simple nasal bone fracture. Plast Reconstr Surg.2004 Jan;113(1): 45-52. DOI: 10.1097/01. PRS.0000096705.64545.
50. Strutz J, Mann W. Praxisder HNO J. Sequelae after nasal septum injuries in children. Auris Nasus Larynx. 2000Oct;27(4): 339-42.DOI:10.1016/S03858146 (00)00071-7