

# **How to reduce mortality and postoperative complications in severe maxillofacial war injuries (16 years experience )**

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## ***ABSTRACT:***

War injuries is traumatic surgery applied under condition of war which cannot modified by the surgeon .The fundamental principles which must be adhered to in the treatment of those cases remain in force whatever circumstances may arise and the important one is saving the patient life .Hippocrates ,writing in the fourth century B.C (war is only the proper school for a surgeon) .The aim of this paper that during 16 years of work in management of five hundreds of severe maxillofacial war injuries in three military hospitals one of them a forward hospital nearly all patients life were saved for those with severe maxillofacial injuries they arrived alive to the hospital .And the postoperative complications were few . So those severely injured patient should be assessed carefully prior to the treatment to avoid unwanted complications .And to keep in mind that the time factor with the wise decision is the key for successful treatment of those patients , by saving their lives first and skillful surgical approach in the theater to reduce post operative complications . It is good opinion that not to waste that golden minutes when the critically injured patient received in the hospital with e .g radiological examination and other investigations . And one of the main things which I like to emphasize on is that not to disturb your patient more or to try a blind intubation .Emergency tracheotomy with or without local anesthesia saved nearly many patient lives from definite death .The completion of the operation in one step give a very interesting results by reducing post operative complications .

**Key wards :** Severe maxillofacial war injuries ,life saving , postoperative

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## ***INTRODUCTION:***

Life threatening and post operative complications like infection , fistula formation (nasal, antral and salivary ) secondary hemorrhage ,non union , mal union fibrous union and ankylosis of temporomandibular joint are the most important points we must keep in

our mind when we deal with a case of severe maxillofacial injury .In first and second world war and in .Vietnam and Nigerian war they prefer few tracheotomy and advice for tracheal tube for that severe maxillofacial injuries .The principles of wound management outlined by Porritt in 1953 were understood during the First

world War (Kazangian & Burrows 1918 ) , yet required restatement then and ,indeed , have been restated in each subsequent war . A surgeon essentially trained and involved in civilian injuries is rarely exposed to trauma exactly comparable with war wounds and finds difficulty , for instance in appreciating the concealed extent of tissue damage caused by high-velocity missiles . Rowe (1971) in reviewing the history of the treatment of maxillofacial trauma said wounds of the face though presenting often frightful amount of deformity , are not generally of so serious a nature as their first appearance might lead the inexpert to expect .The reason for this , seems obviously to be the very free supply of blood which this part receives . This will leads us to the very important practical outcome that not to remove any hard tissue fragments unless The comminution be great ,or the fragment completely detached from the soft parts ,Although those frightful injuries sometimes being safer from other injuries of low severity but endangering the patient life by embarrassment of respiration or if the patient is unconscious .It is interesting to find that some surgeons were still agreed for extensive debridement of facial fractures in the First World war (Kazangian 1944).Indeed , Kelsey Fry ,(1953) states that in the Second World War ,there were still divergent schools of thought on this principle . The major wars in united Kingdom produced many advances in the management of wounds of the facial region . These advances lead to establishment of special centers for the treatment of maxillofacial injuries .These centers brought together the respective skills of maxillofacial surgeons , anesthetists and plastic surgeons .In Basrah military hospital which was a forward hospital during the time of Iraq - Iranian war (1981-1987) we had a

very skill , efficient and scientific anesthetist Dr.Jamal Al Khafaji F.F.A.,UK and the main bulk of those severely injured casualties we managed them together as a very successful team .And that was one of the main factors which lead us nearly not to lose any of those patients life we received , In spite of we were very closed to the battle zone . The nature of our early treatment of severe casualties of almost 16 years were depended on the extent of the damage sustained in relation to the facilities available at that time and thereafter and the critical evaluation of the injury in relation to any region in the body to be evaluated by other specialists in the field . The nature of wounds which we have been treated were mainly of the following types : 1-Penetrating wounds :bullet ,shell , rests in the tissue Fig1 . 2- Perforating wounds: Bullet ,shell with high velocity causes large avulsive type of exit Fig2 . 3-Avulsive wounds : high velocity missile avulse part of the hard and soft tissue of the maxillofacial region Fig7 .And I added to that: 4-Emigrant bullet or shell injury which has an inlet and intraoral or intrapharyngeal exit swallowed by the patient unconsciously Fig8 . The following method in the treatment will explain how we save nearly all the patient's life who reach to the hospital alive and how we reduce post operative complications to minimum .

## ***MATEREAL AND METHOD***

Injuries produced by gunshot and other missiles travelling at varying speed will be considered together and in addition to that the maxillofacial trauma which might be added to those injuries to the same patient like fall on hard surface or road traffic accident for those sitting in the cars during explosion or firing e.g. you find

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patients with simple. Those wounds vary considerably in extent and characters . Many appear hopeless at first sight but surprising results are usually obtained by careful surgical technique. Since these wounds are usually extensive , first attention must be given to the general condition of the patient to ensure an adequate airway , arrest hemorrhage , and control of shock must be done .The very nature of those wounds produces conditions that tend to interfere with upper respiratory passages and if not corrected early , they may lead to disastrous result .if any doubt exists as the ability to maintain a patient airway by conservative methods ,no hesitancy should delay performing of tracheotomy , Control of hemorrhage is usually not a major problem in severe maxillofacial injuries . From 1981-1987 in Basrah military hospital which was forward hospital very close to the battle zone , 1987-1992 in Rasheed military hospital and 1992-1997 in Hummad Shehabe military hospital which are both a base hospital I received hundreds of severely injured patients with all types of trauma : war injuries , road traffic accident , work trauma , fall from a height and those avulsive type of injury which avuls part of the soft tissue or hard tissue or both and during that period I did n`t lose any patient`s life with pure maxillofacial injuries and I had a minimal post operative complications .

### ***THE METHOD***

Before I explain the method of the treatment of those sever maxillofacial injuries I like to emphasize on a three main points which was present in management of those cases : first is the way fallowed for the emergency work in the theaters which were of the limited number by label the causalities according to the priority for saving

the patients` lives .Second is the cooperation between the other specialties .Third presence of the efficient anesthetist and team outside and inside the theater . Many life saving procedures like emergency tracheotomy done outside the theater under local anesthesia , so the method of treatment started from receiving the patient in the hospital . The golden minutes in saving patients life started here so when such patient received do n`t waste those minutes which means wasting patient`s life like for example : sending the patient for radiological or other investigation . The main decision here does the patient need emergency tracheotomy or not which is the key for saving the patient life don`t waste your time or your patients life by asking the anesthetist to do blind intubation with or without induction if the case indicated for tracheotomy with or without anesthesia .A cooperation here between the maxillofacial surgeon and the anesthetist is very important and essential to save patient`s life because the anesthetist here has : 1- Limited time to pass his tube safely for 3-4 minutes 2- He will do it blindly because all the field is disturbed and whenever the patient lie on his back the airway will be blocked and the reverse calculation will start for that 3-4 golden minutes . 3-If the anesthetist fail there will be a time of seconds to do emergency tracheotomy . 4-Remember in this critical situation that if the anesthetist fail to pass his tube the patient might go to heaven . In one of my cases the anesthetist fail to pass his tube and he call me in the last seconds to do emergency tracheotomy and I did it in few second but the patient go with cardiac arrest and my colleague the anesthetist do cardiac massage for him with ventilation through the tracheotomy tube and we save his life then we continued our

surgical procedure .And I like to mention her very important point that in such cases you must always be ready to do emergency tracheotomy .So what we do her to prevent such possible disaster in losing patient life :

- 1- Call for emergency tracheotomy set immediately .
- 2-Ask your anesthetist to be ready for induction .
- 3-Ask for simple surgical set to do tracheotomy under local anesthesia if the case needed .
- 4-Don't disturb your patient or to change his position suddenly and if you do this you must do it very gently
- 5-Most of those patient they are cooperative .
- 6- Explain for your patient what you are going to do .
- 7-Start with infiltration anesthesia in the region of the longitudinal incision from the creoid cartilage to the sternal notch .
- 8-When the patient in sitting position with a head slightly tilted backward by the assistant start your incision carefully without too much manipulation in the region because this might cause irritation to the trachea and coughing which is undesirable thing .
- 9-Dissect gently in the mid line until you reach to the trachea and her stop your dissection because what you need to do is to incise the trachea which is very irritating to the conscious patient at this stage and that will take a very short time when you ask the anesthetist to do his induction .
- 10-When he give the induction keep your patient on tracheostomy position quickly to make your incision in the trachea and introduce the tracheostomy tube .
- 11- The anesthetist will connect the joint of his tube with tracheotomy tube and at the same time the assistant will tie the tracheotomy tube around the neck while the other assistant hold the tube in its place prevent dislodgment.
- 12- Then complete suturing of tracheotomy incision and the patient will be ready for the suitable operation.
- 13-If the

patient deteriorated at any stage before induction we can incise the trachea to do emergency tracheotomy .

- 14- if the patient need elective tracheostomy and not emergency tracheotomy after successful intubation to prevent post operative airway obstruction it is necessary to be done .

## ***THE SURGICAL PROCEDURE :***

Started with control of hemorrhage and treatment of shock , remove ( foreign body ,fractured tooth , prosthesis , detached piece of bone ) . Then perfect pharyngeal pack to prevent swallowing and inhalation of blood . followed by thorough and vigorous irrigation. Management of bone : In severe injuries sometimes both mandible and maxilla involved and there is no any dental or even skeletal relationship and in these cases the best guide will be the lower border of mandible which will be taken as base to build everything on it . And by this way you keep the contour and centric relationship of the upper and lower jaw nearly normal .The comminuted mandible and maxilla treated by multiple intraossious wires .If there is a large segment lost from the mandible we can adapt a Kirschner wire with the contour of the mandible and take it's spring action first and insert it's endes in some cases in the inferior dental canal and by this way we can use it for fixation or as a space maintainer to prevent tissue distortion .The upper jaw reduced according to the lower jaw . After that we used the same principles of fixation in middle third and mandibular fractures .Management of soft tissue : started with simple tissue debridement ,Nasal or antral fistula should be closed if possible , repair of soft palate ,lips , cheeks , followed by tongue repair and floor of the mouth. watertight

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sutures are essential to prevent oral fluids from contaminating the wound . Sutures of the tongue should be made loose because the tongue is a very vascular organ . Orifices of major salivary glands are looked after . If there is soft tissue lost the region should be packed with suitable pack . Before closing the skin in layers it is essential to insert a drain .The corrugated drain was preferable because it will not suck saliva and other fluids inside the wound .After that removal of pharyngeal pack. Nasogastric tube should be passed at this stage for feeding .A suitable intermaxillary fixation should be done if it is indicated . Fluid balance and post operative investigations are followed with control of infection :The regime we used was Ampicilline cloxacilline injection and for those allergic patients lincomycine with gentamycin injection .for a period not less than two weeks in most of severely injured patients .

### **RESULTS**

In sixteen years time 1981-1997 in three military hospitals .I have been treated five hundreds of different types of maxillofacial injuries without lose of any patient life with isolated maxillofacial injury except two patients died one from associated vascular neck injury to the internal jugular vein due to multi transfusion , clotting defect and uncontrolled bleeding . And one patient died in the ward who had perforating soft tissue neck injury due to sudden laryngeal edema when he was in the ward in the waiting list .So without these two patient I have zero % mortality rate in isolated maxillofacial injuries but with those two patients who sustained maxillofacial and neck injuries in 500 patients treated the mortality rate will be 0.4 % table I . Battle (1953) give 1.1% mortality rate in four of

maxillofacial unites . Clarkson (1946) give a mortality rate 1.5% . General experience during the second world war give mortality rate of 1- 1.5 % . Awty & Bank (1971) reported a mortality rate 0.64% . So I will return to say that the life saving measures in severe maxillofacial injuries depend on three essential points : The wise and scientific decision , rapid and right management and efficient maxillofacial surgeon and anesthetist . The age of those casualties varying between 18-45 . The postoperative complications were simple if compared with severity of those injuries . The preoperative signs in most of those patient arrived that the majority of them were in a sitting position and they are conscious the percentage of unconscious patients who reached alive to the hospital was 0.5 - 1% .The common signs of those severely injured patients are severe lacerations , soft or hard tissue avulsion , gross hematoma and swelling , multiple fractures in the maxilla and mandible and in one case the mandible was suspended reaching the sternal notch , and the tongue protruded completely outside Fig4 and in other case most of the mandible was avulsed Fig7 . Those post operative complications were simple like : Saliva leak treated by water tight suture , protruded K-wire which you can accept it as external fixation , Oro-nasal fistula treated successfully by tongue flap or two layer flab . Infection treated by antibiotics , Salivary fistula treated either by fine polythen tube inserted in the stenson's duct or to change the fistula from extra oral to intra oral . Male union ,non union , fibrous union was depend on the amount of bone lost treated later on by successful iliac crest bone graft . limitation of jaw movement was depended upon the effect of that injury on the

temporomandibular joint and this was treated by opening exercise and follow up .In one case gangrene of the anterior third of the tongue happened due to a shell cross the posterior third of the tongue cutting all the blood supply treated successfully by removing the died tip of the tongue Fig2 .Soft tissue reconstruction for most of these injuries done later by cooperation with plastic surgeon.

## ***DISCUSSTION***

Airway airway airway this is the word said three times by a professor in the Royal college of surgeons in London starting his very interesting lecture in preliminary treatment of severe maxillofacial injuries in 1987 and now in 2010 I will repeat it again also three times airway airway airway in the management of severe maxillofacial injuries . The immediate resuscitation of patient with a missile injuries of the facial region must be done on four important steps : Prevention of respiratory obstruction , management of blood loss , treatment of shock ,and prevention of infection . Much of the literatures previously concerned with maxillofacial injuries has concentrated on the mechanical cause for airway obstruction like bleeding , foreign body , prolapsed of the tongue , oedema , and lacerations . It cannot be emphasized too strongly that the most important factor is the level of consciousness of such patients . War injuries of the face provide countless examples where a fully conscious patient has little or no airway problem in spite of extensive distraction of the oro-pharyngeal region which it help to manage himself in transfer from the site and transport to the hospital and even in simple waiting in the hospital . while in contrast the unconscious patient who do not obtained immediate relief from relatively minor mechanical obstruction of the airway ,

loss of life will occur . That is why I said and the people working in the field noticed the percentage of unconscious patients with airway embarrassment in maxillofacial injury who reach alive to the hospital with inefficient transferring team from the site and in the ambulance to the conscious patient in the same environment or worst was 0.5 - 1% .Also I noticed that a large number of those patients they chose a setting position with a head bended down unless they have un associated injuries . Patients with severe maxillofacial injuries reached to the hospital , weak , tired , calm , cooperative , and seek for help from first look . While those patients with simple injury they are , moving , restless and sometimes crying . Emergency incision in to the trachea (tracheotomy) should never be necessary if effective medical skill is available and endotracheal tube can be passed said by (P.Banks , Js. P. Wilson and R.Sanders , P.Terry , R . Whitlock, C.W.Chapman , J.Li.Williams ) . In Vietnam tracheotomy figures for facial injuries ranged from 14.3% ( Tinder et al . 1969 ) to 17 % ( Terry 1969 ). Awty and Banks 1971 performed fewer tracheostomies because of the high morbidity of the procedure in the circumstances of low humidity and limited facilities . There mortality figures were very low comparable with other war situations . Battle (1953 ) comments on the relatively low number of tracheostomies carried out in maxillofacial units during the second world war . Lindholm (1969 ) has compared the morbidity of prolonged endotracheal intubation with tracheotomy in a large series of patients and favor the first one . But from my experience 16 years in treatment of those patients with severe maxillofacial injuries I prefer to follow the method which I did in handling

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those critical cases who might die from asphaxia during intubation . So for me it is not the number of tracheostomy who reduce the mortality rate but how and when to do tracheostomy because the essential point which I like to repeat here : When the anaesthetist start intubation there is only three minutes for him to complete the procedure and I can say again that if he fail it is difficult to ventilate such severely injured patient because the pharynx is completely blocked by the tongue , blood and mucous in most of the cases . and the only thing to do here is an emergency tracheotomy with a very limited time and in my believe that a high percentage of patients with severe maxillofacial injuries died in this stage . So a discussion with anaesthetist first and wise evaluation of the case is the only thing to save patient life by starting tracheotomy with local anaesthesia and in all such cases we must always ready to do emergency tracheotomy even without anaesthesia .I noticed that the patients with penetrating and avulsive injuries are safer for intubation than those with perforating injury . Because with avulsive injury there is a good access to the larynx and with penetrating injury the amount of oedema and heamatoma is less unless a major artery involved by the injury . So when we start disturbing the patient to rush to the endotracheal intubation the revers calculation for those three golden minutes which decide patient life will start and with its end there will be a high possibility to lose your patient's life . So the other things which must be remembered here that most of the tracheal intubation done for the other fields there is a time to try and a time to ventilate if the procedure fail because the pharynx is clear .But in the most of maxillofacial injuries the pharynx is nearly blocked by blood . And I think this is the main cause

which make most of the anaesthetists rash to the intubation without evaluation of the difference between the two procedures which make them face a difficult problems in management of maxillofacial injuries . Hemorrhage was not so important like airway . Clarkson et . al (1946) state that the uncomplicated maxillofacial casualty is not often in a great need of plasma or blood . And only about 1% of their cases was transfusion life-saving . Low external carotid ligation should only be necessary when there is a need to remove a foreign body which has perforated the artery at some more distal point . I had one case reached alive to the hospital with a bullet fractured the angle of the mandible and penetrate to the internal carotid artery and settle as a plug .But in such injuries it is wise not to remove the bullet suddenly to face with severe hemorrhage and what we did ligation of the artery from its mesial side then removal of the bullet with ligation of the distal end as a life saving procedure .The patient did n`t developed hemiplagea or aphasia postoperatively Fig 1 . And from my experience seven years in a forward hospital which was very closed to the battle during receiving a large number of severely injured patient alive I can say that the more close the maxillofacial surgeon to the battle zone the more tracheotomies he need to do with the procedure I explained while the maxillofacial surgeon who is far from battle zone need to do few tracheotomies , because a high percentage of casualties might die during transport if there is lack of facilities .In preliminary treatment it is very beneficial to do the surgical procedure completely in one stage in the original operation to promote healing and minimize postoperative complications . Porrit (1953) writing on the general treatment of war wounds one of the cardinal rules of

war surgery was that there should be no primary suture of wounds . The one exception of this rule was in the case of wounds of the face which if properly excised , healed in 90% of cases .Osbam (1973) points out that closure within 24 hours was possible in most cases and that this policy produced the best aesthetic results . I have one case done a primary closure after 48 hours and had a very satisfactory result Fig9 .Indeed Broadbent & Woolf (1972 ) advocate carrying out as much definitive reconstruction as possible at the time of original operation . And this is what I did for both bone fixation and soft tissue repair for my patients .Primary suture often without drainage , is possible in facial missile wounds seen within 24 hours . Wounds seen later than this are best treated by packing open and when clean , carrying out delayed primary suture .Such wounds should always be drained .Wound edges should be excised by 1-2mm where necessary to create a non beveled edge . Water tight sutures of mucosal surface must be achieved during the process of debridement . In fixation of any bone fracture , any completely detached piece of bone should be removed . Space maintainer like Kerschner wire was valuable when a large segment of mandible lost which prevent distortion and maintain normal relation .The preliminary treatment must be directed toward achieving healed tissue with minimum deformity after the initial problem of preservation of life has overcome . The skin losses should be made good when possible by undermining of skin edges and advancement . The steps in management of the fractured mandible was : Debridement , management of involved teeth , reduction and fixation , closure of mucosa and skin , Drainage and completion of fixation while in the midface fracture : The defect in the

palate or maxillary antrum should be packed by gauze impregnated with whitehed varnish . Which is a water proofed and mildly antiseptic .Attention should be made in maxillofacial injuries for eye injuries to be followed by ophthalmic surgeon. And insertion of nasogastric tube post operatively for feeding . Oral hygiene and control of infection and fallow up of the patients is essential things to minimize postoperative complications.

### **CONCLUSION :**

During 16 years of management of severe maxillofacial injuries in three military hospitals a method of handling these casualties was described but the results were surprising in reducing mortality rate and post operative complications .In the treatment of 500 casualties I have zero % mortality rate for those with isolated maxillofacial trauma and 0.4 % mortality rate in face , jaws and neck injuries table 1 in comparison with the least mortality rate 0.65% by Awty & Bank (1971) Although we must be remembered that there is a fact airway or vascular compromise the main two causes prevent preoperative X-Ray because sometimes patients died during waiting in X-Ray department for taking unnecessary X-Ray films . Emergency tracheotomy with or without local anaesthesia or elective tracheostomy for those which they can intubated safely was the key for saving many patients lives .(When you think wisely about tracheostomy do it ). And from my experience it is unwise to order for blind intubation for patient with severe maxillofacial injury if the case indicated for tracheotomy before you try to start tracheotomy under local anaesthesia . Also you shouldn't order for induction in such casualties unless you are completely ready to do emergency tracheotomy .In following the basic principles in the treatment of

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severe maxillofacial injuries it was very clear in minimizing postoperative complication . In severely injured patient the lower border of the mandible was the best guide and base to build all the fractured lower and middle third of facial skeleton according to its relations. Doing the operation in one step was very valuable in reducing postoperative complications .Watertight sutures are beneficial in most of the cases . Postoperative antibiotics , feeding and follow up are important factors in reducing post operative complication .One of the patient we received had a

Hb 4 g /100 ml due to neglecting . Unconscious patient need special care to prevent asphyxia .And lastly it is expedient to reduce the immediate care of the acutely injured patient to three basic requirements : first by oxygen , second by blood and third by pump to circulate it . The first aid and preliminary treatment are very important in saving life , reducing complication and to restore aesthetic and function ,(( The war is Ulster has been unnecessary evil , and distressing , but it has been a valuable surgical school ))

**Table 1: The mortality Of maxillofacial missile injuries in patients who survive to reach the hospital**

Total	Discharged	Died	%Death	The author	Site of injuries
11123	10989	134	1.1%	Battle (1953)	Head and neck
1000	985	15	1.5%	Clarkson et al (1946)	Jaw fractures
*	*	*	1- 1.5 %	*	Face and jaws
321	310	2	0.64%	Awty and Banks (1971)	--
19	١٤	5	**26.3%	Gray and coppe (1975)	Neck and Jaw
500	498	٢	0.4%	Humaidi (2010)	Face , jaws and neck
500	500	0	0%	Humaidy (2010)	Face and jaws

\*Mortality rate of second world war

\*\*In missile injuries to the neck and jaws admitted directly from the street of Belfast to an intensive care unit .



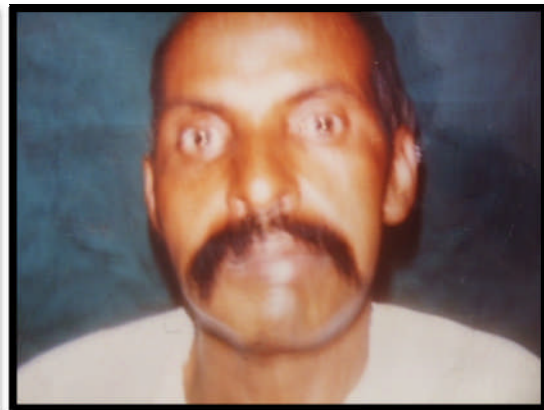
**Fig (1.1 ):**Penetrating injury from above the left corner of the mouth rest in the left internal carotid artery



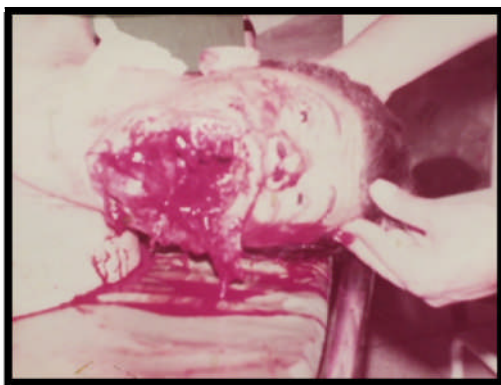
**Fig (1.2):**The same patient without signs of hemiplagea



**Fig(2.1):**Perforating injury



**Fig(2.2):**The same patient postoperative



**Fig(3.1):**Avulsive injury



**Fig(3.2):** The same patient postoperative

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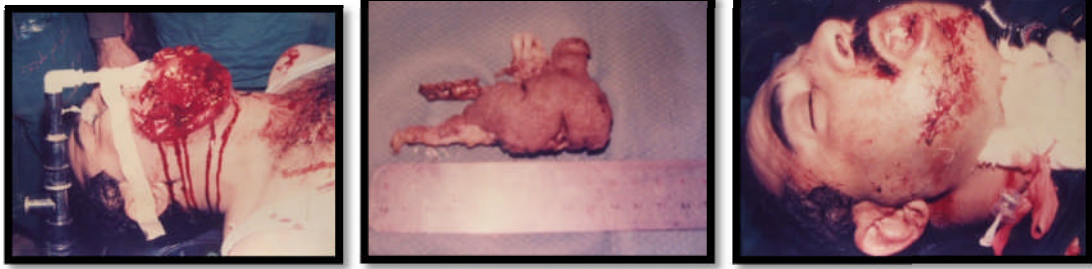
**Fig(4.1):Avulsive injury Fig(4.2):The same patient Fig(4.3):Postoperative**



**Fig(5.1):Avulsive injury Fig(5.2):The same patient postoperative**



**Fig(6.1): Avulsive injury Fig(6.2): The same patient postoperative**



**Fig(7.1):** Avulsive injury **Fig(7.2):**Chin avulsed(15cm) **Fig(7.3):** postoperative



**Fig(8.1):**Emigrant injury inlet **Fig(8.2):** Emigrant injury intraoral exit **Fig(8.3):** The same patient abdominal radiograph showing the swallowed bullet in the intesten



**Fig(9.1):** ): Avulsive injury **Fig(9.2):**The same patient postoperative with primary closure after 48 hour

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## كيف تقلل الوفيات والمضاعفات في إصابات الحرب الشديدة في منطقة الوجه والفكين (خبرة ستة عشر عاما )

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### الخلاصة :

تشكل إصابات الحرب جروح غير نظاميه في ظروف الحرب والتي ليس باستطاعة الجراح تغيير مساراتها والقواعد الاساسيه التي يجب تطبيقها في معالجة مثل هذه الحالات تبقى ثابتة رغم كل الظروف وأهمها إنقاذ حياة المريض .هيبوكرات في القرن الرابع قبل الميلاد قال (الحرب هي ألمدرسه المناسبه الوحيدة للجراح) . أن الغرض من هذا البحث هو من خلال ستة عشر عاما في معالجة المنات من إصابات الوجه والفكين الشديدة في ثلاث مستشفيات عسكريه منها مستشفى واحد قريب من الجبهة ، لقد تم إنقاذ حياة جميع المرضى تقريبا والذين كانت إصاباتهم في منطقة الوجه والفكين فقط والذين وصلوا أحياء إلى المستشفى و إن المضاعفات بعد العملية كانت قليلة نسبة إلى الضرر الحاصل . إذن هذه الإصابات الشديدة في الوجه والفكين يجب تقديرها بحذر وبدقه قبل البدء بالعلاج لإنقاذ حياة المريض ومنع أي مضاعفات غير مرغوب فيها وتفاديها . وفي هذه المناسبة يجب أن نقول إن عامل الوقت والقرار العقلاني المدروس هو مفتاح العلاج الناجح لإصابات الوجه والفكين الشديدة لإنقاذ حياة المرضى والطريقة البارعة التي يستخدمها الجراح في الصالة تختزل مضاعفات ما بعد أعمليه . وان لمن ألكمه أن لا نضيع هذه الدقائق الذهبية الثمينه بعد وصول المريض المصاب بإصابات خطيرة إلى المستشفى بأشياء ثانوية مثال ذلك إرسال المريض إلى الفحص أشعاعي وفحوصات أخرى غير ضرورية في هذه المرحلة أخرج من العلاج والتي تصب في إنقاذ حياة المريض أولا من الموت اختناقا . وان من الأشياء الرئيسية التي أريد أن أركز عليها في هذه المرحلة أخرج هو عدم تغيير وضع المريض المفاجئ أو محاولة إدخال أنبوية الرغامي من قبل اختصاصي التخدير دون أخذ رأي الجراح بذلك . علما إن عملية خزع الرغامي الطارئة بواسطة التخدير الموضعي أو حتى بدون التخدير موضعي أنقذت حياة الكثير من هؤلاء المرضى المصابين . وان طريقة إكمال العملية الابتدائية بمرحلة واحده أعطت نتائج ناجحة جدا باختزال نسبة المضاعفات بعد العملية

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