



Pinna Injuries: Our Experience

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Abstract

Introduction: Trauma to the external ear is common, as different kinds of injuries can affect different parts of the ear. Commonest of these causative agents include mechanical and thermal factors. Otolaryngologists as a primary surgeon are pivotal in proper recognition and treatment to avoid possible complications, and to improve treatment outcomes.

Objective: Main objective of this study was to understand types of pinna injuries in clinical practice in our institute, their management and treatment outcome.

Materials and Methods: This is a prospective study with 45 cases of pinna injury studied over a period of one year at Academy of medical sciences, Pariyaram, Kannur, Kerala, India. All cases were managed by thorough irrigation, debridement and suturing. Contour of pinna was maintained where necessary by applying pressure dressing.

Results: We studied 45 cases in a period of 12 months. 75% of which were Males. 44% cases were RTA, 28% assaults and 15% cases were due to assaults and one case of human bite. Most of the cases healed well except 9 cases which developed chondritis.

Keywords: Pinna, Chondritis, Lacerations, Debridement.

Introduction

Otological injuries are a common presentation to the otolaryngologist and can be most challenging at times. The external ear is commonly involved in facial / head trauma. Injuries to the pinna can range from simple lacerations to complete avulsions. Some of these injuries can lead to hematoma and chondritis causing cosmetic disfigurement. The different types of pinna injuries encountered, their management and treatment outcome is described in this paper.

Ear trauma is a reflection of increasing number of road and other accidents, physical assaults, contact sports and other forms of trauma. The external, middle and inner ear may be affected in isolation or together depending on the force and agent of trauma. The injuries may range from simple blunt trauma to the pinna, without loss of tissue to complex lacerations or even complete avulsions. Along with the nose, the auricle occupies a prominent position in the face. Its exposed and unprotected position makes it

susceptible to injuries. Complications encountered include hematoma and secondary infection leading to perichondritis and deformity. This study will enable us to establish the types of pinna injuries and its complications in our subregion.

Materials and Methods

This is a prospective study of 45 cases who came to emergency medicine department, academy of medical sciences, Pariyaram, Kerala during a 1 year period. Written informed consents were obtained from all patients or their first degree relatives before the study. Our study was approved by institutional ethics committee. Most of the cases with pinna injuries were included in the study. Injuries caused by burns both thermal and chemical were excluded. We also excluded patients with co morbid illnesses like diabetes mellitus, renal diseases etc since it can affect the prognosis. Cases which needed plastic surgery intervention like total amputation, severely deformed pinna, loss of tissue warranting skin grafts and flaps were also excluded. The proforma included a detailed history and evaluation of ear nose and throat and other injuries. Local anaesthesia was given in all cases with 2% lignocaine with adrenaline. Debridement was done with povidone iodine, hydrogen peroxide and saline. Devascularised and necrosed tissues were removed. Skin was approximated using 4’0 prolene. In cases of cartilage fractures, they were approximated with 4’0 vicryl and a skin cover was given. Antibiotics were given for a period of seven days. Daily dressing was done for cases at risk for developing chondritis. Perichondritis, if noted were managed by draining the pus after removing suture, culture and sensitivity, daily dressing and wound care. Weekly follow up was done for two weeks and then a month after. The outcome of treatment was measured in terms of healing without complications such as chondritis or cosmetic deformity.

Results

A total of 45 cases were included in the study. All of the patient presented to the casualty. The study was done over a period of 12 months. Majority of the patients studied were in 20-40 age groups. Of all the patients studied males predominated with almost 75% of cases (34 ears). (Figure 1) Most of the female injuries occurred due to Road Traffic Accidents (RTA). The left ear (28, 62.2%) was more commonly affected compared to the right ear 17(37.7%). Among the 45 cases, 44% cases were due to Road Traffic Accidents, 28% cases were due to assaults and 15% cases were due to falls. We had one case of human bite. Most of the cases healed well with initial debridement, suturing with skin cover and daily dressing. 9 case developed early features of chondritis. 7 of these ears subsequently healed well. 2 patients developed minor deformity of pinna following complete healing of the wound (Table 1).

Table 1: Healing pattern in patients

HEALING	No. of cases (n=45)	Percentage %
Complete healing	36	80
Healing with perichondritis	7	15.5
Healing With residual deformity	2	4.5

Figure 1: Causes of pinna injuries

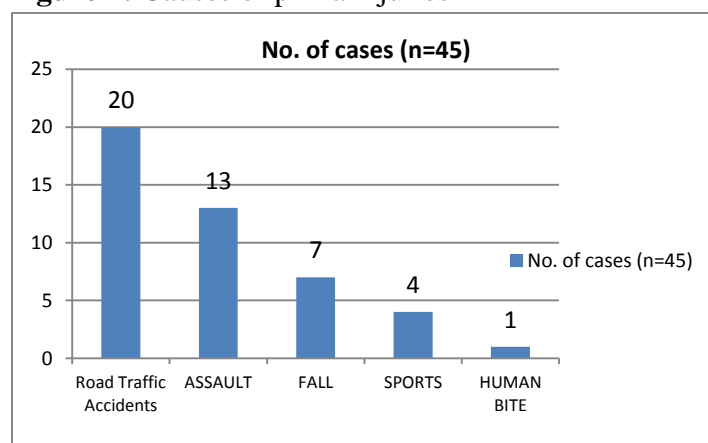




Figure 2: Pinna laceration with exposed cartilage



Figure 3: Sutured pinna laceration



Figure 4: Healed wound

Discussion

Pinna injuries are one of the common cases encountered by otolaryngologist in ED¹. The need for prompt initial treatment in pinna injuries is due to the fact that difficulties may arise in reconstruction of ear following injuries, which may eventually lead to cosmetic deformity. As a rule we usually rely on the idea of maximum

tissue conservation, maintaining adequate skin cover and prevention of infections in the management of these patients. The ear has an often under looked ability to maintain the viability of large parts on a small pedicle. Thus the viable tissue should be preserved as much as possible during the initial debridement. Most of the lacerations of the pinna are amenable for closure primarily after initial proper debridement and care of the wound.

In general, Road traffic accidents and trauma are the commonest cause for external ear injuries². A good approximation under aseptic precautions, vascularity and wound care are required to get the best results. The aim of treatment should be to restore the normal contours of the ear and prevent infection. Prompt surgical intervention with extra cartilaginous suturing under good antibiotic cover has to be applied in achieving this^{3,4,5}.

Lacerations are the most common type of injury to the pinna¹, Most of which are caused by motor vehicle accidents, recreational activity mishaps, brawls and job related injuries. Lacerations may involve the skin, cartilage or both. It can also occur due to blunt and sharp objects, thermal and chemical injuries. The pinna heals in vast majority of cases if usual precautions are observed, the goal of treatment being restoration of normal contour of pinna and preventing infection⁶

Pinna injuries may be less common in trauma in general since it is made up of elastic cartilage and easily deflected⁷. The primary goal is to prevent infection and deformity and this can be achieved by good approximation. Since the pinna has good blood supply, most of the cases heal well. The wound is irrigated well with saline or tap water to remove foreign and particles (sand, dust) silt. It was observed that meticulous and timely management by thoroughly washing the wound, debridement of devitalised tissue, covering the exposed cartilage with skin sutures and prevention of wound hematoma, application of stay sutures to cartilage when necessary, pressure dressing with contour maintenance and prophylactic antibiotics helped in healing without any complications⁸. So

the exposed cartilage must be trimmed off or the excess excised. if there is any hematoma it has to be drained. Hematomas lead to devascularisation of the cartilage and infection. Viable tissue is preserved as far as possible. Local flaps and skin grafts can be used if there is tissue loss and exposed cartilage⁹. Attempts should be made to preserve all remaining viable tissue¹⁰. Evacuation of pus and debridement of devitalised cartilage with intravenous antibiotics and daily wound dressing helped in minimizing secondary infection and cosmetic disfigurement of the external ear¹¹. The patient and the family members should be counseled about the procedure, risk of infection and deformity and the requirement of subsequent procedures. Some injuries may require the consultation of a plastic surgeon. These include severe crush injuries, amputation of the ear, loss of skin with exposed cartilage and devitalized tissue. Stenting of wound with light contour dressing under antibiotic cover is recommended for preservation of contour¹².

But, sometimes despite all measures we tend to encounter complications. The location of the hematoma within the cartilage itself has also been sometimes mentioned as one of the reasons for initial failure⁵. Most important and commonest of these complications is chondritis as is also seen in our study in few of our patients. Chondritis may result in disfigurement¹³. the cartilage takes its blood supply from the overlying skin and damage to microcirculation is one of the main reasons for the same. So it is important to give a skin cover. We noted chondritis in 15 % of our cases. We found that the risk of chondritis varies depending on the type of injury and time of presentation. Chondritis as a complication in our cases was mainly seen in trauma due to road traffic accidents with gross contamination of wounds and delay in arrival from the site of accident. Literature has mentioned late presentation and inadequate intervention predisposing to complications with poor outcome. Pseudomonas, staphylococcus and some gram negative pathogens and mixed flora are common pathogens involved in secondary

infection and chondritis. Initial symptoms of chondritis include erythema, local rise of temperature and tenderness. Later, abscess may form between the cartilage and perichondrium with necrosis of cartilage. This requires prompt drainage of pus and necrotic cartilage. The abscess needs to be drained and antibiotics to be based on culture. Some cases need topical antibiotic wash. If there is a hematoma, it needs to be drained before suturing. It can cause fibrotic changes and lead to deformity known as cauliflower ear.

In our study majority of our patients were males in the age group 20-50 yrs. Among Females, all of the cases were due to Road Traffic Accidents. In our study, chondritis have occurred in patients with RTA when wound was contaminated with silt and particles. This emphasizes the importance of irrigation and washing. Debridement of the infected cartilage, antibiotic according to culture and sensitivity and daily dressing lead to complete healing.

Conclusion

The incidence of trauma is gradually increasing over the years. Auricular trauma requires prompt care and treatment as it carries the added risk of deformity due to perichondritis, which may eventually prove more disastrous for the patient. Through this study we note the most important reasons behind pinna injuries and the need for management and follow up by an expert. We also recommend early intervention, wound debridement, good antibiotic coverage in ear trauma and early prompt diagnosis of complications which can yield better outcome and good cosmetic results.

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Conflicts of Interest: None declared

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