

Common complications involved in body piercing

Wounds International, Vol 1, Issue 5 > Practice > **Common complications involved in body piercing**



As the prevalence of body piercing has increased in recent years so has the associated list of documented risks and complications. Some of the more common localised dermatologic risks include infection, hypertrophic scarring and keloid formation, and traumatic tearing. This article examines the main risks of body piercing and looks at techniques for management and prevention.

INTRODUCTION

Cosmetic body piercing has become increasingly popular in recent years and may now even be considered a mainstream activity across many social groups. This is especially true in developed countries where up to 51% of the general population may have a piercing[1,2] and the number of individuals with piercings continues to rise[3]. However, as the prevalence of body piercing has increased so has the list of recognised dermatologic risks and complications, some of which can lead to significant long-term cosmetic sequelae.

INFECTIOUS COMPLICATIONS

Infectious complications are the most commonly reported adverse incidents associated with body piercing. The combination of the trauma inherent in the piercing process together with the ongoing presence of a foreign body lends itself toward a risk of infection[4]. Any break in the integrity of the skin can expose a person to the danger of local infections such as cellulitis and abscesses as well as to systemic infection[3].

Localised infections are reported in 10-30% of body piercings[5,6]. The rate of infection is influenced by factors such as the anatomic location of the piercing, the experience level of the clinician, hygiene, aftercare,[7] and the types of materials used (nickel alloys are among the most problematic with regard to allergic reaction)[8]. This article explores the anatomic site-specific and host-specific considerations contributing to a risk of localised infection.

Ear piercings

Ear piercings are among the most frequently studied and reported with regard to complication rates and have been thought to largely reflect potential infectious complications associated with other

anatomical sites[7] [Fig 1]. Infection is among the most commonly reported complication of ear piercings, occurring in up to 35% of cases[3]. While recent studies reflecting modern piercing techniques have not shown a significant prevalence of serious infection in the general population involving ear piercings (less than 1%)[6], there is a growing body of literature which highlights both the risk and potential serious nature of these infections.

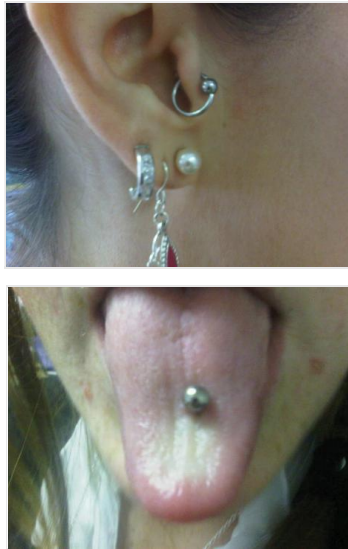


Figure 1 - Ear, tragus and tongue piercings.

This is particularly true with high ear piercings that involve the cartilage and these have become increasingly popular over recent years. The available literature suggests that the increased prevalence of high ear piercing has led to an increased risk of morbidity associated with these piercings, including higher incidences of auricular perichondritis and abscess formation[9].

Anatomic variations, such as blood supply to the site, can contribute to an increased risk of infection after piercing. While piercing sites in the earlobe heal in approximately six weeks[10], cartilage and tragus piercings [Fig 1] can take up to one year to heal[11]. Of the reported cases of infected cartilage in high ear piercings of the pinna, *pseudomonas aeruginosa* is most commonly implicated, with staphylococcal and streptococcal infection also reported[12,13].

Because these cartilaginous infections can be difficult to resolve, aggressive therapy earlier in the course of the infection should be considered and empirical therapy of auricular chondritis should include broad spectrum coverage (including antipseudomonal coverage), for example with ciprofloxacin when oral antibiotics are appropriate[12,13]. If these infections are severe or are not rapidly responsive to more conservative treatment, more aggressive measures should be considered, including surgical drainage and intravenous (IV) antibiotics[9]. Although the earlier the infection is recognised and treated the greater the likelihood of successful results, the extent of the consequent ear deformity is unpredictable even with early treatment. For example, the healing process may cause permanent deformity such as 'cauliflower ear'[9].

Other sites

Infectious complications of body piercings are not limited to the ear and may be related to the characteristics of other anatomic sites. For example, nasal piercings present a higher risk for local infection because the nose can be colonised by staphylococcal organisms[3].

Nipple piercings, which are associated with a risk of subareolar breast abscesses, are thought to create localised scarring, which distorts the ductal drainage. The resultant chronic ductal scarring increases the risk of abscess formation, which may occur either as an acute event, or several years after the piercing placement[14]. In addition, breast or chest implants are thought to be risk factors for localised infection following nipple piercing [15,16].

Navel piercings are also at risk of infection due to a prolonged healing time, which can be as much as 6-9 months. This is thought to be related to friction and skin maceration from restrictive clothing[10]. Tight clothing can also cause increased moisture, which in turn promotes bacterial growth[3].

Host risk factors may play a role in the infectious complications of body piercing, although this has not been well studied. For example, people with increased vulnerability to infection, such as those with diabetes or taking corticosteroids, are at greater risk of infection following body piercing[10].

It would further stand to reason that as methicillin resistant *Staphylococcus aureus* (MRSA) is one of the causative organisms of infection following piercing, any factors that increase a person's susceptibility to MRSA are a danger. People at risk include those with prior community-acquired MRSA infection, household members of infected persons, HIV-infected patients, pregnant and post-partum women, and people of lower socioeconomic status living in crowded living conditions[17]. Care should be taken to ensure that patients with these risk factors understand the increased risk of post-piercing infection, prevention strategies, and warning signs and symptoms of infection.

Prevention

Prevention is key in terms of piercing site infection and anatomic issues should be discussed with patients, for example they should be made aware of the increased infectious risks associated with cartilage piercing. Also, only trained professionals who are more likely to be aware of and adhere to modifiable risk factors should perform ear piercings, and in particular high ear piercings. Piercing guns should be avoided, especially for cartilaginous piercings[18], as these are associated with an increased incidence of infectious complications such as auricular perichondritis. This is thought to be related to

additional blunt trauma and the associated shear forces deleterious to the perichondrium and the blood supply of the cartilage[12].

Furthermore, there is a documented seasonal element to infection risk and perichondritis is more common in the summer months, when increased ambient temperature and skin moisture is thought to increase the proliferation of causative bacterial agents[19].

Finally, the importance of aftercare should be stressed, including how to cleanse and care for the pierced site. Patients should handle the piercing appropriately, touching the jewellery only when necessary and only after thoroughly washing their hands[11]. The site should be cleansed once daily with an antibacterial, however alcohol-based products are not recommended because of their tendency to excessively dry the skin.

In order to maintain the integrity of the pierced site, the jewellery should not be removed or changed during the healing period. Consideration of additional measures to promote wound healing are also recommended, including good nutrition with a focus on foods that are high in vitamin C and zinc[11].

KELOID AND HYPERTROPHIC SCAR FORMATION

Several noninfectious complications of piercing have been reported, including hypertrophic scars and keloid formation. Hypertrophic scars are raised but confined to the borders of the original injury, and tend to occur within the first few weeks after the piercing. In contrast, keloid formation tends to proliferate well beyond the borders of the initial wound and invade peripheral tissue, and may occur as a later complication of body piercing. While not common, this complication can have significant cosmetic ramifications.

[Wounds International, Vol 1, Issue 5](#) › [Practice](#) › **Common complications involved in body piercing**

Prevention

Prevention of keloid and hypertrophic scars remains the best strategy, since the effectiveness of management strategies is variable. Host factors are considered particularly important in keloid formation. It is strongly recommended that those patients with a predisposition to develop excessive scar formation should avoid non-essential traumatic insult to the skin, such as body piercing. In particular, persons with a history of hypertrophic or keloid scars are at extremely high risk for recurrence and should be advised against body piercing[11].

A family history of keloid formation has been well documented in several studies and the literature suggests that patients with a strong family history of keloid scarring are also at risk[21]. Prevention also involves avoiding anatomic sites with a higher risk of keloid formation, including the ears, cheeks,

shoulders, chest, upper arms and upper back. Whether this is due to increased skin tension in these areas remains a subject of debate[22].

Treatment

Treatment options have traditionally included intralesional steroid injections, cryotherapy, pressure dressings, radiation, laser therapy, surgical excision, or a combination of these methods[23,24]. Simple surgical excision is often followed by recurrence unless adjunct therapies are employed[22].

TRAUMATIC DEFORMITY AND TEARING

Trauma and the resulting complications of piercings may occur in a variety of anatomic sites. Trauma to the pierced external ear is particularly common[10]. Promotion of injury prevention is recommended, including encouraging athletes to remove higher risk jewellery during contact sports[10]. Traumatic tears of the earlobe should be cleaned and repaired within 12-24 hours. Meltzer suggests that a simple traumatic ear lobe tear can be repaired under local anaesthesia, although more complex lacerations of ear cartilage often require specialist referral[10].

In addition to traumatic tears, ear piercings also lend themselves to other cosmetic issues associated with the prolonged wearing of heavy jewellery, such as split and stretched earlobes[10]. Plastic surgeons are often presented with split earlobes and the recurrence rate is high.

While split earlobes may be related to trauma or heavy jewellery, there is some recent evidence that metal allergy may play a role in the increased risk of split earlobes[25]. It has, therefore been suggested that avoiding the offending metal in the earring is key to helping to prevent recurrence of split earlobe after surgical repair.

Complications related to allergic reactions are more common with widespread use of nickel-alloyed studs or clasps. Subsequently, measures in several countries have attempted to help prevent this sensitisation to nickel dermatitis and the *European Community Nickel Directive*, which significantly limits the amount of nickel released from an item of jewellery, became law in the EU in 2001 and has undergone subsequent revisions[26].

CONCLUSION

Given the morbidity associated with dermatologic complications of body piercing, prevention is a key component in the response of clinicians. Prevention of adverse dermatologic sequelae should include helping patients understand and anticipate potential risks in order to minimise difficulties.

Author details



Cindy M Schorzman is a staff physician at Student Health Services, California State University, Sacramento, USA.

REFERENCES

1. Antoszewski B, Szychta P, Fijalkowska M. Are we aware of all complications following body piercing procedures? *Int J Dermatol* 2009; 48(4): 422-5.
2. Mayers LB, Judelson DA, Moriarty BW, Rundell, KW. Prevalence of body art (body piercing and tattooing) in university undergraduates and incidence of medical complications. *Mayo Clinic Proc* 2002; 77: 29-34.
3. Stirn A. Body piercing: Medical consequences and psychological motivations. *Lancet* 2003; 361(9364): 1205-15.
4. Trupiano JK, Sebek BA, Goldfarb J, et al. Mastitis due to mycobacterium abscessus after body piercing. *Clin Infect Dis* 2001; 33(1): 131-4.
5. Guiard-Schmid JB, Picard H, Slama L, et al. Piercing and its infectious complications. A public health issue in France. *Presse Med* 2000; 29(35): 1948-56.
6. Simplot TC, Hoffman HT. Comparison between cartilage and soft tissue ear piercing complications. *Am J Otolaryngol* 1998; 18(5): 305-10.
7. Tweeten SS, Rickman LS. Infectious complications of body piercing. *Clin Infect Dis* 1998; 26: 735-40.
8. Kaatz M, Elsner P, Bauer A. Body-modifying concepts and dermatologic problems: tattooing and piercing. *Clin Dermatol* 2008; 26(1): 35-44.
9. Fernandez Ade P, Castro Neto I, Anias CR, et al. Post-piercing perichondritis. *Rev Bras Otorrinolaringol* 2008; 74(6): 933-7.
10. Meltzer D. Complications of body piercing. *Am Fam Physician* 2005; 72(10): 2029-34.
11. Gunter T, McDowell B. Body piercing: issues in adolescent health. *J Spec Pediatr Nurs* 2004; 9(2): 67-9.
12. Folz BJ, Lippert BM, Keulkens C, Werner JA. Hazards of piercing and facial body art: A report of three patients and literature review. *Ann Plast Surg* 2000; 45(4): 374-81.
13. Staley R, Fitzgibbon JJ, Anderson C. Auricular infections caused by high ear piercing in adolescents. *Pediatrics* 1997; 99(4): 610-11.
14. Gollapalli V, Liao J, Dudakovic A, et al. Risk factors for development and recurrence of primary breast abscesses. *J Am Coll Surg* 2010; 211(1): 41-8.
15. Javaid M, Shibu M. Breast implant infection following nipple piercing. *Br J Plast Surg* 1999; 27:

16. De Kleer N, Cohen M, Semple J, et al. Nipple piercing may be contraindicated in male patients with chest implants. *Ann Plast Surg* 2001; 47: 188-90.
17. Cohen P. Community-acquired methicillin-resistant *Staphylococcus aureus* skin infections: Implications for patients and practitioners. *Am J Clin Dermatol* 2007; 8(5): 259-70.
18. Keene WE, Markum AC, Samadpour M. Outbreak of *Pseudomonas aeruginosa* infections caused by commercial piercing of upper ear cartilage. *J Am Med Assoc* 2004; 291(8): 981-5.
19. Das P. Piercing the cartilage and not the lobes leads to ear infections. *Lancet Infect Dis* 2002; 2(12): 715.
20. Mataix J, Silvestre JF. Cutaneous adverse reactions to tattoos and piercings. *Actas Dermosifiliogr* 2009; 100: 643-56.
21. Lane JE, Waller JL, Davis LS. Relationship between age of ear piercing and keloid formation. *Pediatrics* 2005; 115(5): 1312-4.
22. Alster T, Tanzi E. Hypertrophic scars and keloids: etiology and management. *Am J Clin Dermatol* 2003; 4(4): 235-43.
23. Shaffer JJ, Taylor SC, Cook-Bolden F. Keloidal scars: a review with a critical look at therapeutic options. *J Am Acad Dermatol* 2002; 46: S63-97.
24. Akoz T, Gideroglu K, Akan M. Combination of different techniques for the treatment of earlobe keloids. *Aesthetic Plast Surg* 2002; 26(3): 184-8.
25. Raveendran SS, Amarasinghe L. The mystery of the split earlobe. *Plast Reconstr Surg* 2004; 114(7): 1903-9.
26. Liden C, Norberg K. Nickel on the Swedish market. Follow-up after implementation of the nickel directive. *Contact Derm* 2005; 52(1): 29-35.