Erythematous swollen ear

The timing of the reaction in this case led us to the proper diagnosis.

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A 25-YEAR-OLD WOMAN presented with an exceedingly tender right ear. She'd had the helix of her ear pierced 3 days prior to presentation and 2 days after that, the ear had become tender. The tenderness was progressively worsening and associated with throbbing pain. The patient, who'd had her ears pierced before, was otherwise in good health and denied fever, chills, or travel outside of the country. She had been going to the gym regularly and took frequent showers. Physical examination revealed an erythematous swollen ear that was tender to the touch (**FIGURE**). The entire auricle was swollen except for the earlobe. The patient also reported purulent material draining from the helical piercing site.

○ **WHAT IS YOUR DIAGNOSIS?**
○ **HOW WOULD YOU TREAT THIS PATIENT?**

FIGURE
Red, swollen, and tender ear

IMAGE COURTESY OF: MEGHAN KLAWONN, MD

The patient's piercing site is visible, but the stud was removed. The earlobe was not involved.

> Prompt treatment is necessary as infection can spread quickly and lead to cosmetic disfigurement.

Diagnosis:
Auricular perichondritis

Auricular perichondritis is an inflammation of the connective tissue surrounding the cartilage of the ear. Infectious and autoimmune factors may play a role. The underlying cartilage also may become involved. A useful clinical clue to the diagnosis of auricular perichondritis is sparing of the earlobe, which does not contain cartilage. Autoimmune causes typically have bilateral involvement. Infectious causes are usually associated with trauma and purulent drainage at the wound site. Ear piercings are an increasingly common cause, but perichondritis due to minor trauma, as a surgical complication, or in the absence of an obvious inciting trigger can occur. A careful history usually will reveal the cause.

■ **In this case**, the patient indicated that an open piercing gun at a shopping mall kiosk had been used to pierce her ear. Piercing with a sterile straight needle would have been preferable and less likely to be associated with secondary infection, as the shearing trauma to the perichondrium experienced with a piercing gun is thought to predispose to infection.[1] Exposure to fresh water from the shower could have been a source for *Pseudomonas* infection.[1]

Differential: Pinpointing the diagnosis early is vital

A red and tender ear can raise a differential diagnosis that includes erysipelas, relapsing polychondritis, and auricular perichondritis. Erysipelas is a bacterial infection that spreads through the lymphatic system and is associated with intense and well-demarcated erythema. Erysipelas typically involves the face or lower legs. Infection after piercing or traumatic injury should raise suspicion of pseudomonal infection.[2-5] Untreated infection can spread quickly and lead to permanent ear deformity. Although the same pattern of inflammation can be seen in relapsing polychondritis, relapsing polychondritis typically involves both ears as well as the eyes and joints.

Prompt treatment is necessary to avoid cosmetic disfigurement

The timing of the reaction in our patient made infection obvious because *Pseudomonas aeruginosa* seems to have a particular affinity for damaged cartilage.[2]

Ciprofloxacin 500 mg twice daily is the treatment of choice. Although many skin infections can be empirically treated with oral cephalosporin, penicillin, or erythromycin, it is important to recognize that infected piercing sites and auricular perichondritis due to pseudomonal infection will not respond to these agents. That's because these agents do not provide as good coverage for *Pseudomonas* as they do for *Staphylococci* or other bacteria more often associated with skin infection. Treatment with an agent such as amoxicillin and clavulanic acid or oral cephalexin can mean the loss of valuable time and subsequent cosmetic disfigurement.[6]

When fluctuance is present, incision and drainage, or even debridement, may be necessary. When extensive infection leads to cartilage necrosis and liquefaction, treatment is difficult and may result in lasting disfigurement. Prompt empiric treatment currently is considered the best option.[6]

■ **Our patient** was prescribed a course of ciprofloxacin 500 mg every 12 hours for 10 days. She noted improvement within 2 days, and the infection resolved without complication. **JFP**

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