

Case Report

Perichondritis

Urgent message: With the popularity of piercing of the ear cartilage, urgent care providers need to be on the alert for perichondritis and to treat it promptly.

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Case Presentation

A 26-year-old female presented with complaints of a swollen right pinna for 2 weeks. The swelling progressively worsened over time. In addition, she also complained of severe pain of the right pinna, with an intensity of 7/10, with no radiation and no aggravating or relieving factors. One week previously, she had been examined in an urgent care facility and was given a 10-day course of amoxicillin for presumed acute otitis externa. However, the infection continued to worsen. There was no history of trauma to the ear and no other significant medical history.

Physical Exam

On examination, the patient had an inflamed, erythematous and tender right pinna (Figure 1). The pre- and post-auricular lymph nodes were enlarged and tender. Examination of the rest of the ear was normal and hearing was not impaired. She was afebrile and all other systemic examinations were normal.

Diagnosis

Perichondritis

Anatomy of the External Ear

The external ear consists of the pinna, a fan-like projection that works to collect sound, and the external acoustic meatus. The pinna is composed of elastic car-



tilage covered by a layer of connective tissue called perichondrium.¹ The blood supply to the ear arises from the posterior auricular and superficial temporal arteries.

Differential Diagnoses

Table 1 lists differential diagnoses. The patient had no exposure to swimming and no involvement of deeper structures or soft tissues. With involvement of the pinna, diagnosis of perichondritis was favored.

Perichondritis is an infection of the skin and soft tissues surrounding the cartilage of the external ear, including the pinna. The tissues of the pinna receive less humoral circulation, therefore, any injury or infection takes longer to heal, and any edema and exudates take longer to be absorbed, increasing the likelihood of secondary infection and abscess formation.²

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Figure 1.



The pinna is inflamed, erythematous, and tender.

Table 1. Differential Diagnosis

- Simple otitis externa (“swimmer’s ear”)
- Malignant external otitis
- Cellulitis
- Perichondritis
- Abscess

Causes

The most common bacteria that cause perichondritis are *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Escherichia coli* and *Proteus* species, with *P. aeruginosa* being the most common culprit.³ Perichondritis is usually a result of secondary infection of the ear after traumatic injury.

In recent years, penetrating injuries to the ear such as acupuncture and cartilage piercing have increasingly becoming causes of perichondritis.⁴ In fact, ear piercing through the cartilage is probably the most significant risk factor today.⁵ The cartilage itself is relatively avascular, and trauma via piercing devascularizes it even further, providing a good medium for bacteria that could be introduced by the piercing needle or gun.⁵

Surgery and burns can also cause perichondritis, and there have been rare cases of the infection occurring secondary to furunculosis, chronic ear discharge, congenital intra-auricular sinuses, allergy, diffuse lesions following herpes zoster, or insect bites.^{2,3} Perichondritis can also develop secondary to malignant otitis externa.³

Symptoms

Perichondritis usually presents first as a dull pain that increases in severity, accompanied by redness and swelling.² The redness usually surrounds an area of injury, such as a cut or scrape. The infection begins in the helix and anti-helix, and resembles cellulitis, a simple skin infection; however, it quickly worsens and involves the perichondrium. In severe cases, an abscess can develop, peeling the perichondrium off the cartilaginous layer and resulting in necrosis of the cartilage^{1,4} and deformation of the ear, known as “cauliflower ear.”² In such advanced cases, the patient may be febrile, and

there may be fluid draining from the wound.

Exams and Tests

Perichondritis is diagnosed based on the patient’s medical history and by examination of the ear. If there is a history of trauma to the ear and the ear is red and tender, perichondritis is the most likely diagnosis. There may be a change in the normal shape of the ear.

Treatment

Treatment consists of broad antibiotic coverage, either by mouth or directly into the bloodstream via an intravenous line. Because most of the cases are associated with *P. aeruginosa* bacteria, empiric treatment would include a fluoroquinolone, as these drugs are the only oral treatment effective against these bacteria.⁴ If there is a trapped collection of pus or abscess formation, surgical intervention, such as needle aspiration or incision and drainage, may be necessary to drain the fluid and remove any dead skin and cartilage. Recent studies have also shown success with the newly developed method

of aspiration, injection of streptomycin and hyaluronidase directly into the infected site, and finally triamcinolone to restrict inflammation.²

Complications

If antibiotics are taken early, full recovery from perichondritis is expected. In more advanced cases, the infection can involve the ear cartilage. This is called "chondritis," and with such an infection, part of the ear may die and need to be surgically removed. A perichondrial abscess may also develop. If so, plastic surgery will be needed to restore the ear to its normal shape.²⁻⁴

Prevention

The best way to prevent perichondritis is to avoid piercing one's ear through the cartilage, as opposed to the ear lobe. The popularity of cartilage piercing has led to a significant increase in the number of perichondritis and chondritis cases.⁵

Conclusion

Although ear piercing was not the cause of the perichondritis in our patient, the culture of ear piercing in young adults has increased recently. If it is not done properly and sterile techniques are not used carefully, young adults may end up having the complication of perichondritis. It is important for urgent care physicians to be familiar with this common condition and treatment should be started as early as possible to prevent permanent damage to a soft cartilage. ■

References

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