

Original article

# Bacterial chondritis complications following ear piercing

## *Chondrites bactériennes de l'oreille post-piercing*

G. Bellaud<sup>a,b,\*</sup>, A. Canestri<sup>b</sup>, S. Gallah<sup>c</sup>, M. Merlant<sup>b</sup>, S. Cousseau<sup>b</sup>, M.G. Lebrette<sup>b</sup>,  
L. Slama<sup>b</sup>, G. Pialoux<sup>a,b,\*\*</sup>

<sup>a</sup> Infectious diseases department, Pierre-et-Marie-Curie University, Tenon Hospital, Paris, France

<sup>b</sup> Infectious diseases department, Tenon Hospital, Paris, France

<sup>c</sup> Department of bacteriology, Tenon Hospital, Paris, France

Received 24 February 2016; accepted 19 July 2016

Available online 3 September 2016

### Abstract

**Background.** – Body piercing has become widespread and is associated with increased complications. Post-piercing chondritis may lead to severe residual deformity. We aimed to report case patients presenting with post-piercing chondritis in our department and to describe clinical features and treatment.

**Patients and methods.** – We conducted a retrospective study of patients presenting with post-piercing chondritis in the infectious disease department of Tenon Hospital, Paris, France.

**Results.** – We included 21 patients. Fifteen bacteriological cultures were positive (7 *Pseudomonas aeruginosa*, 5 *Staphylococcus aureus*, and three other). Dual intravenous antibiotic therapy was administered to 13 patients for a median duration of six days [2–8], replaced by an oral antibiotic therapy for a median duration of 15 days [7–40]. Eight patients received oral antibiotic monotherapy for 10 days [7–30]. Median duration of antibiotic therapy was 16 days. Earring removal was performed for 18 patients. No ear deformity or general complication was reported.

**Conclusion.** – Transcartilagineous ear piercing may lead to infectious complications or deformity. In case of chondritis, early administration of an antibiotic therapy active against *P. aeruginosa* and *S. aureus* is recommended. Specific guidelines are needed.

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**Keywords:** Chondritis; Piercing; *Pseudomonas aeruginosa*

### Résumé

**Introduction.** – Le piercing est une pratique devenue très courante et s'accompagne d'une augmentation de ses complications. Les chondrites *post-piercing* peuvent aboutir à des déformations séquellaires de l'oreille. Nous rapportons les cas de patients ayant présenté une chondrite *post-piercing* et décrivons leurs caractéristiques et leur prise en charge.

**Patients et méthodes.** – Nous avons mené une étude rétrospective au sein du service de maladies infectieuses et tropicales de l'hôpital Tenon, Paris, France.

**Résultats.** – Vingt et un patients ont été inclus. Quinze prélèvements bactériologiques étaient positifs en culture (7 *Pseudomonas aeruginosa*, 5 *Staphylococcus aureus* et trois autres). Une double antibiothérapie intraveineuse était administrée pour 13 patients pendant une durée médiane de six jours [2–8], relayée par une antibiothérapie orale pour une durée médiane de 15 jours [7–40]. Pour huit patients, une monothérapie antibiotique était prescrite pour 10 jours [7–30]. La durée médiane de l'antibiothérapie pour l'ensemble des patients était de 16 jours. Le retrait du bijou était réalisé chez 18 patients. Aucune déformation séquellaire ou complication générale n'était constatée.

\* Corresponding author at: Service de maladies infectieuses et tropicales, hôpital Tenon, 4, rue de la Chine, 75020 Paris, France.

\*\* Co-corresponding author.

E-mail addresses: [guillaumebellaud@gmail.com](mailto:guillaumebellaud@gmail.com) (G. Bellaud), [gilles.pialoux@aphp.fr](mailto:gilles.pialoux@aphp.fr) (G. Pialoux).

**Conclusion.** – Les piercings du cartilage de l'oreille peuvent se compliquer d'infection locale ou de déformation inesthétique. En cas de chondrite, le traitement antibiotique doit être administré précocement et doit être actif sur *Pseudomonas aeruginosa* et *Staphylococcus aureus*. Des recommandations consensuelles sont souhaitables.

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**Mots clés :** Chondrite ; Piercing ; *Pseudomonas aeruginosa*

## 1. Introduction

Body piercing has become widespread since the last decade [1]. Ear piercing is usually performed in jewelry stores or tattoos studios and has to be done in strict sanitary conditions. Local and general complications resulting from body ornamentation are well-known [2,3] and consist in healing disorders and infectious complications. Infectious complications are observed in up to 25% of piercing procedures [4].

Transcartilagineous ear piercing is the third most common site for body piercing, excluding the ear lobe [5,6], and is associated with a higher risk of infectious complications [7]. Several sites are used for cartilage piercing (Fig. 1). Cartilage trauma, even after a minor trauma such as piercing [8], can lead to chondritis or perichondritis. These infections could be much more severe because of the avascular condition of cartilage which increases bacterial development [9] and reduces the efficacy of antibiotics.

Patients also have to be cautious for a longer period of time following procedure, including the period of cartilage healing which is longer compared with other anatomical areas (6 to 8 weeks) [10].

Bacteria involved in this type of infections may also be different from the usual bacteria involved in skin infections such as *Streptococcus* and *Staphylococcus aureus* (*S. aureus*). In a recent systematic published review [11], *Pseudomonas*

*aeruginosa* (*P. aeruginosa*) accounted for a majority of chondritis case patients and first-line oral antibiotics did not target the cultured bacterium in 50% of cases. Thus, 92.3% of the pretreated population had to be hospitalized.

Early diagnosis and appropriate antibiotic therapies are necessary to prevent unsightly scars and local or general complications. However, healthcare professionals are poorly trained and lack standardized guidelines to adequately manage piercing infectious complications.

Chondritis complications following ear piercing have dramatically increased over the past years and to our knowledge few reports have been published [11,12].

We aimed to describe post-piercing ear chondritis complications among patients managed in our infectious disease department. Epidemiological, medical, and antibiotic therapy data was collected during the follow-up period.

## 2. Materials and methods

We identified the codes corresponding to piercing chondritis using the Infectious and Tropical Disease Department database (DIAMM G, Nancy, France). We retrospectively collected demographic, bacteriological, and previous treatment data for each participant.

Bacteriological analysis was performed using semi-quantitative methods. Bacteriological samples were collected using swabs or suction syringes in aseptic conditions. Aerobic and anaerobic cultures were performed on Columbia agar technique (bioMérieux, Craponne, France). All patients provided written informed consent before photos were taken.

## 3. Results

We included 21 patients from January 2010 to May 2015: 20 female patients and one male patient, with a mean age of 22 years [16–35]. All piercings had been performed by professional piercers. Four patients had previous complications related to another piercing (data available for 14/21 patients). Three patients reported atopic dermatitis and four patients had a medical history of dermatitis. None of them was diabetic and 50% (7/14) were current smokers. Nonsteroidal anti-inflammatory drugs were administered to 3/14 patients before the complication event.

Fourteen piercings were performed in the helix and seven in the tragus. Mean time between piercing procedure and symptom onset was 11.5 days [2–1305], with a median interval of seven days [1–152] between symptom onset and diagnosis.



Fig. 1. Ear cartilage piercing sites.

Sites anatomiques de piercing du cartilage de l'oreille.

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