

Congenital Preauricular Sinus/Cyst in Infants and Children: A Retrospective Review of Treatment Options

H. Rataiczak¹; J. Lavin²; M. Levy²; J. Bedwell²; D. Preciado²; B. Reilly²,
¹Walter Reed National Military Medical Center, ²Children's National Medical Center

Abstract

Objective: To determine whether incision and drainage (I&D) of infected congenital preauricular cysts is associated with increased rate of recurrence when compared to needle aspiration or antibiotic treatment.

Design: Retrospective case review.

Setting: Tertiary care pediatric hospital

Participants: Patients treated for preauricular cysts from February, 2006 to October, 2014. Subjects were identified using the procedure code for excision of pre-auricular pit/cyst/sinus

Main outcome measures: The relationship between preoperative infection history, treatment modality of infection and post-excision recurrence.

Results: Sixty-nine patients with age range 4 months to 17 years underwent excision of a pre-auricular cyst. The average age was 5.9 years and 37/69 (53.6%) patients were female. 57/69 (82.6%) had a preoperative history of infection; the remainder had chronic drainage. Of patients with preoperative infection, 27 were treated with I&D, 12 were treated with needle aspiration, and 18 received antibiotic therapy alone. There was no significant difference in postoperative recurrence rates between patients with and without prior history of infection (7/58 and 1/11 respectively, $p = 1.00$). In the subset of patients with a history of preoperative infection, an increase in recurrence was found in patients undergoing preoperative I&D (6/27) when compared to patients treated with needle aspiration or antibiotics alone (1/31) ($p = 0.042$).

Introduction

Preauricular pits are commonly encountered congenital malformations. They can arise sporadically or are inherited in an incomplete autosomal dominant fashion, with reduced penetrance and variable expressivity (1). Thought to be the result of an incomplete fusion of the six Hillocks of His, preauricular sinus tracts typically present as indolent pinpoint depressions, located along the anterior margin of the ascending limb of the helix, superior to the auricle, along the cymba concha, at the lobule, or posterior to the auricle (2,3). Occasionally, these depressions can become infected, manifesting as facial cellulitis or a local abscess, which require antibiotic therapy and, at times, incision and drainage (I&D). Surgical treatment ideally consists of complete excision of the sinus tract, typically when the tissue is not actively infected. While recurrence rates following tract excision have been documented in various studies, the impact of recurrence after incision and drainage remains unclear. I&D is typically avoided in acute infections, as traditionally it is thought to increase risk of recurrence after definitive tract removal. Recently, other studies have examined the relationship between I&D and recurrence rates after tract excisions. In 2012, Simon and Magin examined whether a history of prior I&D of thyroglossal duct cysts increased infection recurrence rates after a Sistrunk procedure. They found that incision and drainage pre-operatively did not influence recurrence after excision (4). Our hypothesis is I&D of an infected preauricular cyst is associated with an increased rate of recurrence, as compared to needle aspiration or antibiotic treatment alone.



Image: I. Preauricular pit II. Preauricular pit with discharge

Methods and Materials

After obtaining approval from the Children's National Medical Center's Institutional Review Board, we queried the surgical records of our otolaryngology practice from January 1, 2000 to December 31, 2011. Study subjects were identified using the CPT procedure code for excision of pre-auricular cyst/sinus. Each record was individually reviewed. The data extracted included sex, age at surgery, pre-operative antibiotic treatment, pre-operative fine needle aspiration, pre-operative incision and drainage, time from surgery to recurrence, size of specimen, intraoperative rupture, size of excised tract, and final pathology. Recurrence was defined as a persistent pre-auricular mass or drainage from the area. We excluded children who did not have a cyst by pathologic evaluation. Statistical analysis was completed using the Fisher exact test to compare the rates of recurrence with or without preoperative infection and with or without incision and drainage. Results were deemed to be significant if $p < 0.05$.

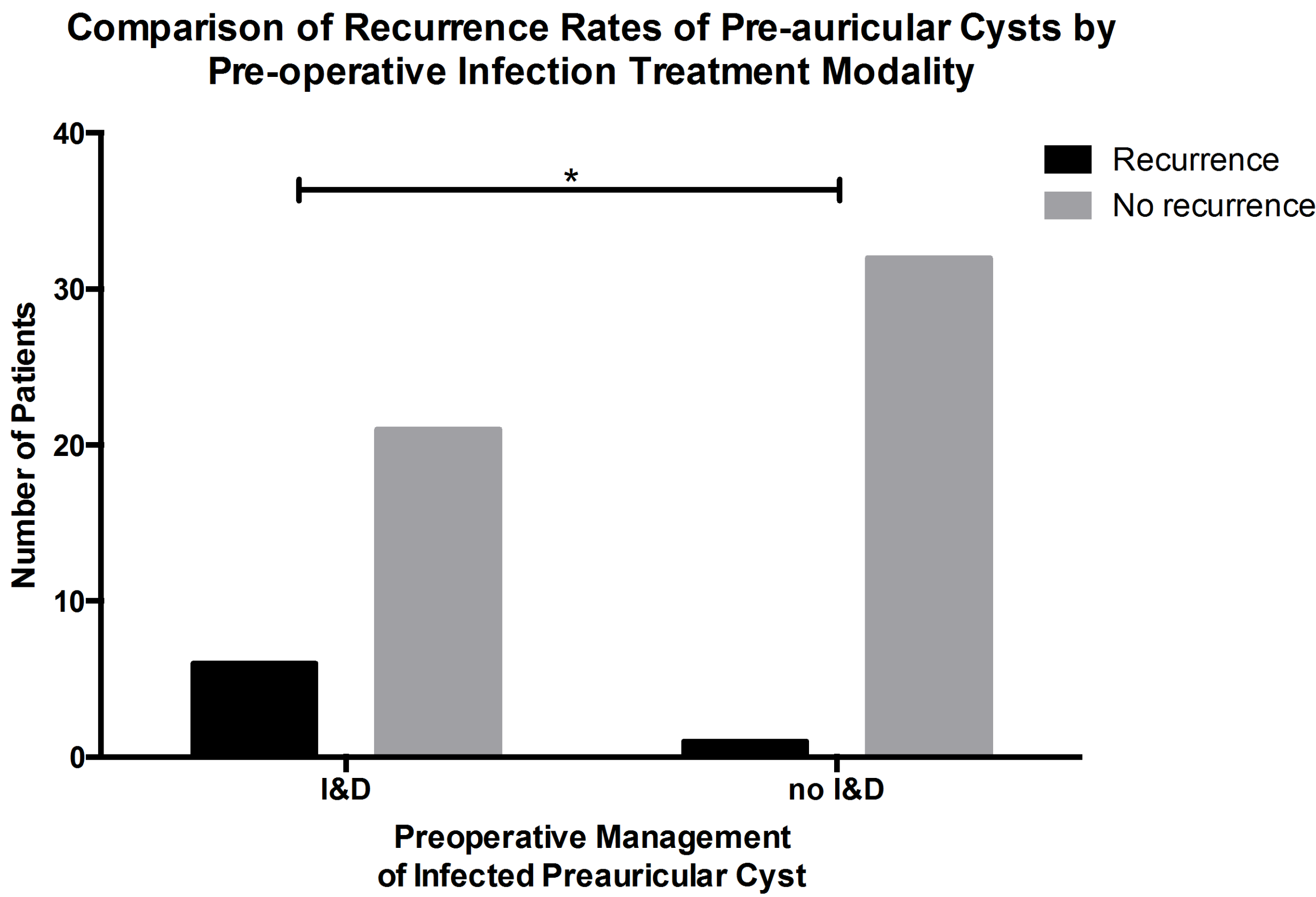


Figure 1a: Number of I&D in sample population

Results

Demographics: A review of CPT codes yielded patients who underwent excision of suspected pre-auricular pits during the study period. Of these, 69 patients had pathology confirmed anomalies. The average age of the patients was 5.9 years (ranging 4 months to 17 years), and 37/69 (53.6%) of patients were female. Fifty-seven of the patients (82.6%) had a history of infection prior to the scheduled surgical excision, and 12 patients had chronic drainage as the indication for surgery (17.4%). Of the 57 patients with preoperative infection, 27 were treated with I&D, 12 underwent needle aspiration, and 18 were treated medically with antibiotics

Recurrence Rates: Of the patients who had a history of preoperative infection, only 1/11 (9%) of patients had recurrent lesions. This was not significantly different than the recurrence rate of 7/58 (12%) in patients with preoperatively infected lesions ($p = 1$) (Figure 1a). In patients who had a preoperative history of infection, 6/27 (22%) of lesions from patients with preoperative history of I&D recurred. This was found to be significantly greater than the recurrence rate of 1/31 (3.2%) in patients undergoing preoperative antibiotic therapy or needle aspiration ($p = 0.042$). No significant difference in recurrence rate was noted between patients undergoing preoperative antibiotic therapy and preoperative needle aspiration or between patients undergoing needle aspiration and I&D ($p > 0.05$).

Discussion

Our study suggests that pre-operative I&D of the infected pre-auricular pit/sinus, but not prior history of infection, is associated with increased incidence of recurrence after excision. This differs from a similar study by Simon and Magit, who examined recurrence rates in thyroglossal duct cysts and found no significant relationship between incision and drainage and cyst recurrence (4). Their study also found that preoperative infection is associated with increased recurrence rates (4). Our data does not suggest this relationship. These differences could be attributed to the multibranched, arborized nature of the preauricular pit (5), opposed to the thyroglossal duct cyst which forms along a tract (6). Our data also suggests that prior needle aspiration does not impact recurrence rates. This could be attributed to the small numbers of needle aspiration performed. Limitations of the study include lack of documented infection severity at time of presentation, lack of documented operative technique, and low sample size.

Conclusions

Pre-operative I&D of the infected pre-auricular pit/sinus, but not prior history of infection, is associated with increased incidence of recurrence after excision. This may guide the practitioner toward more conservative treatment modalities, such as oral antibiotics or fine needle aspiration.

Contact

Dr. Brian Reilly
Children's National Medical Center
Email: Breilly@childrensnational.org

References

1. Scheinfeld NS, Silverberg NB, Weinberg JM "The preauricular sinus: a review of its clinical presentation, treatment, and associations" *Pediatr Dermatol*. 2004 May-Jun; 21(3):191-6
2. Ellies M, Laskawi R, Arlebe C "Clinical evaluation and surgical management of congenital preauricular fistulas" *J Oral Maxillofac Surg* 1998 Jul; 56(7):827-30
3. Yeo SW, Jun BC, Park SI et al "The preauricular sinus: factors contributing to recurrence after surgery" *Am J Otolaryng* 2006 (27) 396-400
4. Simon LM, Magit AE. "Impact of incision and drainage of infected thyroglossal duct cyst on recurrence after sistrunk procedure" *Archives of otolaryngology* 2012 JAN 138 (1): 20-24
5. Lam HC, Soo G, Wormald PJ, et al "Excision of the preauricular sinus: a comparison of two surgical techniques" *Laryngoscope* 2001 (111) 317-319
6. Oomen KP et al "thyroglossal duct cyst and ectopic thyroid: surgical management" *Oto clinic of NA* 2015 (48:1) 15-27