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Fistulectomy in a 9-years old boy with pre-auricular fistula



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ABSTRACT

Introduction: Preauricular fistule is a congenital malformation of the six auditory hillocks during the development of auricle. It mostly appears like a small pit close to the first ascending portion of the helix's anterior margin. The sebaceous glands secreted fluid through the opening of the fistule. Surgery is needed if the discharge is prolonged or if there was a repeated infection. It must be completely removed to prevent a recurrence. Accuracy is required in performing fistulectomy and aesthetics because the operation is in the area around the face.

Case description: Male patient, 9 years old, complained of itching in the right ear. Since birth, the patient has an abnormal hole (fistule) in front of his right ear, anterior of the medial supra auricle helix, round and the size of a tip of the pencil. The mother

has the same history. There is an abscess near that hole that secretes yellow pus. That occurred twice this year and it has greatly disturbed the patient's activities at school. The patient was diagnosed with a preauricular fistula with an abscess in the right ear. An abscess drainage incision was performed and an antibiotic was given. Fistulectomy is performed after the acute infection subsides under general anesthesia. The patient underwent a simple fistulectomy surgery. The whole track and sinus were removed, the defect was undermined and sutured.

Conclusion: A simple fistulectomy is a good option as a standard procedure for preauricular fistula excision. It is especially useful as an alternative in cases where the other approaches are difficult to be performed.

Keywords: preauricular fistule, fistulectomy, abscess.

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INTRODUCTION

Preauricular fistule is a common congenital malformation of the preauricular soft tissue, first described by Van Heusinger in 1864.¹ Preauricular fistules are quite common in children. They are due to inadequate fusion of the six hillocks.² It is also termed as preauricular pit, preauricular sinus, preauricular tract, and preauricular cyst. The embryological basis of this malformation is associated with a defect in developing the first branchial arch during sixth week of gestation. Another hypothesis, less accredited, is that the sinus develops during embryonal auricular development from an isolated ectodermal folding.³ Auricles originate from the first and second branchial arches at 6 weeks of pregnancy. The branchial arch is a mesoderm structure enclosed by the ectoderm and into the endoderm.

These arches are separated by the ectoderm toward the outer gurney and by the endoderm pharyngeal pouch inwardly. The first and second branchial arches respectively forming three protrusions, called the Hillocks of His. Three hills arise from the lower edge of the first and third branchial arch from the second branchial arch's upper border. These hillocks are supposed to join over the next several weeks during embryogenesis. Congenital preauricular fistula due to disruption of the fusion and closure of the first and second branchial arches from the hillocks of His.⁴

The disorder is inherited in autosomal dominant incomplete, 25-50% occurs bilaterally. The literature mentions that in Asia the incidence reaches 1-10%.⁵ The right side appears to be more often involved and females more than males.³ Usually asymptomatic, preauricular fistula

patients frequently seek treatment due to infection. Asymptomatic preauricular fistula does not require action except for special precautions against infection. Prevention of infection can be done by regularly avoiding manipulation and cleaning the sinus from obstruction with alcohol or other antiseptic fluids. However, there is an opinion that even asymptomatic sinus conditions should be excised due to its indeterminate behavior.⁴ In this report we would like to present our case about infected pre-auricular fistule in 9-year-old boy.

CASE REPORT

A 9-year-old boy came to ear nose throat (ENT) clinic complaining of itchy in his right ear since 2 weeks ago. It felt in the lump, an abscess, in front of the right ear accompanied by slightly thick yellowish



Figure 1. Preauricular fistule with an abscess in the patient

pus. Since birth, the patient had an abnormal hole (fistula) in front of his right ear, in front of his tragus, round and the size of a tip of pencil. He said that he often had a lump near the fistula \pm 2 times in the past year. That abscess is located in the anterior of the medial supra auricle helix. It starts with a pimple-like lump that feels painful and itchy. It's enlarged and secretes pus. This complaint severely disrupts patients' activities at school. His mother had the same complaint, a fistula in her right ear when she was a child and after surgery, the complaint disappeared until now.

The patient was alert, vital signs and generalist status are within normal limits, the local status of the right auricle region, anterior of the medial supra auricle helix, and an abscess measuring 1cm x 0.5cm,

with hyperemia and tenderness (Figure 1). In front of tragus there is the opening, the orifice, of the fistule. Fistulography not performed in this patient due to unavailability of equipment. The patient had complete blood count, blood chemistry, and physiological hemostasis and all were within normal limits.

The patient was diagnosed with a preauricular fistula with an abscess in the right ear. Abscess drainage incision was performed and an antibiotic was given orally. Fistulectomy performed after the acute infection subsides. The patient underwent a simple fistulectomy surgery. Before the incision, methylene blue solution was injected into the fistula tract. An elliptical incision was made around the fistule, and dissection was carried out to find the sac using "inside out" technique as shown in Figure 2. The sac was located anterior of the medial supra auricle helix. The whole track and sinus were removed and the defect was undermined and sutured.

The patient did not experience any anesthesia or perioperative complications. Post-operatively patient was placed on antibiotics, analgesics and discharged the next day. He was reviewed in the outpatient clinic at 2 weeks, all of the surgical sites had healed well without wound dehiscence or surgical site infection but still need further follow-up. The patient was recovered well without any complication, and there is no infection on surgical site during follow-up session (Figure 3, 4, and 5).



Figure 2. The fistule



Figure 4. 9 days after surgery



Figure 3. 2 days after surgery



Figure 5. Well-maintained surgical wounds 11 days after surgery

DISCUSSION

Preauricular sinuses are usually asymptomatic, isolated, and require no treatment. Once infection occurs, the likelihood of recurrent acute exacerbation is high. At this point, the sinus tract should be surgically removed. Complete removal of the epithelial lining of the sinus is very important.⁶

Once a patient acquires an infection of the sinus, the subject must receive systemic antibiotics. If an abscess is present, it must be incised and drained, and the exudate should be sent for Gram stain and culture to ensure proper antibiotic coverage. Surgery is performed after the acute phase has been passed, providing a systemic and drainage incision that goes well until the



Figure 6. Ellipse incision and methylene blue injection

patient can be operated on.⁶ Gram stain and culture are rarely performed except in recurrent cases and maximal therapy was not improved.

There is some agreement regarding the indication for surgery on the preauricular fistule. Although there is an opinion that an asymptomatic state can be indicated for surgery, in general experts believe that the indication for surgery is after two consecutive infections or persistent infection. This action is carried out when the acute infection has resolved.⁴ In this case the patient had suffered 2 times acute onset this year, and therefore already fulfilled the indications to operate fistulectomy.

Adequate sinus tract visualization is an important factor in reducing recurrence rates. Most of the technical variations in that review included a combination of methylene blue dye instillation, tract probe, and/or microscope use.⁷ Methylene blue is often used to visualize fistulas and their branches because it is easy to obtain and cheap (Figure 6). However the dye may not enter all the tiny branches so that precision is required during dissection to find the tiny, colorless ducts.⁵

Huang et al. conducted a study of operative management based on the severity of each case. The study concluded that patients with little or no inflammation (swelling, discharge, or erythema over the preauricular sinuses) could be surgically removed using a simple synectomy technique. Meanwhile, patients with more severe inflammation

even after antibiotic administration were operated on using wide local excision or wide excision techniques. This procedure is also performed in patients who have had fistulas due to abscesses or previous drainage incisions and patients who require revision.⁴

Up till now, there are no proven effective operation techniques that can completely excise preauricular fistula. The recurrence rate is quite high up to 20%. The recurrence is most likely due to multiple branches of the sinus tracts frequently missed during the excision. The surgeon needs to identify, isolate, and excise every single terminal branch of the sinus. It gets more difficult in patients with prior history of infection, which often leads to fibrosis that alters the sinus route. Once infection occurs, the likelihood of recurrent acute exacerbations is high.^{1,7}

Factors that reportedly reduce recurrence risk include complete excision of the sinus and tract with associated perichondrium, dissection down to temporalis fascia, closure of dead space, and avoidance of sinus rupture.⁸ Nevertheless, the large dead space resulting from the original supra-auricular approach often necessitates insertion of a drain and postoperative compression dressing. Moreover, a large dead space in the wound may increase the risk of postoperative infection and hematoma.⁷

The difficulty of surgery is due to the fistula branch so it is difficult to determine the total area of the duct during surgical excision, it should be remembered that the

duct may be twisted with subcutaneous branches. Dissection to the periosteum of the temporal bone is usually required, and all branches of the duct must be removed to prevent recurrent infection. Incomplete removal causes the sinuses to ooze, requiring more difficult and more radical removal.¹

A single-surgeon study by Khardali et al. involving 247 ears indicated that preauricular sinuses could be effectively treated using a standard simple elliptical incision with a drainless subcutaneous suture technique. The overall recurrence rates and postoperative wound infection were low (4.5% and 7.3%, respectively). However, the postoperative infection rate was higher in patients who had undergone previous incision and drainage (9.8%) or previous fistulectomy (10%).⁸

Surgery can be performed under local anesthesia or general anesthesia. Surgery with local anesthesia has a higher recurrence rate than general anesthesia. This may be due to patient adherence especially during deep dissection, so general anesthesia is preferred.¹

It's necessary to carefully carry out the fistule during fistulectomy in the patient so that the entire fistula, including its branches, to prevent recurrence. Accuracy is required in performing fistulectomy and also in terms of aesthetics because the operation is in the area around the face. In this study, patients need further follow-up to see if any recurrences that possible up to several years after surgery.

CONCLUSION

A simple fistulectomy is a good option as a standard procedure for preauricular fistula excision, It is especially useful as an alternative in cases where the other approaches are difficult to be performed. Surgeons tend to prefer the standard simple elliptical incision and use methylene blue to trace the tract probably because of the limitations in either of tools or skills as in other operative techniques. The recurrence rate is reliable by many factors, so the operating technique's choice is not the only factor. Accuracy is important in performing fistulectomy. Therefore, it would be helpful for surgeons to be familiar with this approach.

CONFLICT OF INTEREST

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ETHICAL CONSIDERATION

Patient/legal guardian had received signed written informed consent regarding publication of their clinical photograph in journal article.

AUTHOR CONTRIBUTION

Komang Soniananda Pradnyana Putri responsible for follow up, data gathering, and writing the original draft. Luh Witari

Indrayani responsible supervision and guidance of case management.

REFERENCES

1. Song JL, Wu H, Wu L, Mei Y, Feng X, Wu F. Experiences With The Surgical Management of Preauricular Sinus. *B-ENT*. 2019;15:311-317
2. Rogan JC. *Essential ENT* 2nd ed. Royal Berkshire Hospital. UK: Hodder Arnold; 2011.
3. Leopardi G, Chiarella S, Conti GE, Cassandro S. Surgical Treatment of Recurring Preauricular Sinus: Supra-Auricular Approach. *Acta Otorhinolaryngologica Italica*. 2008;28:302-305
4. Didit Y. Congenital Preauricular Sinus Management. *Journal of Medicine Unram*. 2017;6(1):1-7.
5. Widodo DW, Harba'I HM. Surgical management of preauricular fistula based on plastic-reconstructive algorithm. *ORLI*. 2019;49(1);83-92
6. El Anwar MW, El Aassar MS. Supra-auricular versus sinusectomy approaches for preauricular sinuses. *International Archives of Otorhinolaryngology*. 2016;20(4)390-393.
7. Heon Yoo, Dong Ha Park, Il Jae Lee, Myong Chul Park. A Surgical Technique for Congenital Preauricular Sinus. *Arch Craniofac Surg*. 2015.16(2);63-66
8. Kim JR, Kim DH, Kong SK, Gu PM, Hong TU, Kim BJ, Heo KW. Congenital periauricular fistulas: possible variants of the preauricular sinus. *Int J Pediatr Otorhinolaryngol*. 2014;78(11):1843-8. doi: 10.1016/j.ijporl.2014.08.005.



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