

CASE REPORT

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The role of medical imaging in the management of a complex prehelix fistula in children: A case report

Auguste Oluku Omadjela, Stéphane Tongo Yanda

ABSTRACT

Introduction: Complex prehelix fistula is an extremely common congenital malformation in children, but of course it is not always diagnosed quickly. The aim of this study was to show the added value of medical imaging for handling a complex prehelix fistula in our context.

Case Report: We report, here, a left prehelix fistula in an 11-year-old girl, seen and treated at the ear, nose, and throat (ENT) department for a small opening in front of the left helix with a swelling in front of the tragus for several years. We performed an incision and drainage of the pretragial abscess combined with antibiotic and anti-inflammatory therapy, followed by a prehelix fistulotomy (sinusectomy) without prior fistulography. The postoperative course was marked by a remission lasting approximately five months, after which several episodes of pre-tragus abscesses occurred in succession, all controlled by antibiotic therapy. Postoperative fistulography revealed a long, sinuous fistulous tract, explaining the recurrence. Magnetic resonance imaging performed one year later revealed associated brain malformations and the absence of an active fistula tract, indicating healing of the fistula without the need for reintervention.

Conclusion: The prehelix fistula is associated with a high rate of recurrence and infectious episodes. Medical imaging plays a key role in the pre- and postoperative

management of the prehelix fistula. This clinical case demonstrates the value of medical imaging both for preoperative mapping and for identifying associated malformations.

Keywords: Children, Management, Medical imaging, Prehelix fistula

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INTRODUCTION

A prehelix fistula, or periauricular sinus, is a benign congenital malformation, often asymptomatic, and it is usually recognized by a tiny opening located in front of the helix [1]. It shows up during the sixth week of gestation, when the first and second branchial arches come together [2]. Its incidence is estimated around 0.1–0.9% in the United States, 0.9% in England, about 2.5% in Taiwan, and can reach up to 4–10% in some parts of Africa [3].

Now, the reason it can be a bit complicated is that the lesion involves deep, branched fistulous tracts, so the surgical removal becomes harder, with a notable risk of recurrence [4]. Because of that, medical imaging really matters, since it helps to map the fistulous course and allows a more suitable surgical approach to be chosen.

So, this report describes a right prehelix fistula managed in the Democratic Republic of the Congo. In particular, in the ENT department of Saint Joseph Hospital in Kinshasa, among 484 otological procedures recorded from 2007 to 2024, prehelix fistula excision

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represented only 0.8% of all cases, including this difficult one [5]. The aim of this study was to show the added value of medical imaging for handling a complex prehelix fistula.

CASE REPORT

This clinical observation is about an 11-year-old girl who was admitted to the ENT unit of Saint Joseph Hospital in Kinshasa/Limete because she had recurrent purulent otorrhea on the right side. At the same time, there was a swelling in front of the tragus that seemed to have been there for several years.

Her background includes a cranial suture malformation noticed at birth and seizures, later diagnosed as epilepsy. She was treated well with Depakine, and also Gamalate. In the family, her father had diabetes along with hypertension. Her mother, as reported, had taken an ovulation inducer before conception, namely clomiphene citrate.

When she was admitted, she showed a small opening in front of the left helix, and near it there was a painful swelling, tender, and kind of fluctuating to touch. Otherwise, the rest of the ENT exam was basically normal.

So the working diagnosis was a prehelix fistula, complicated by a recurrent pretrageal abscess. The treatment involved surgery: incision and drainage of the pretrageal abscess. This was completed with antibiotics, lincomycin and niflumic acid suppositories. After that, the inflammatory and infectious episode settled.

Finally, a secondary prehelix sinusotomy was done, and it was performed without doing any prior fistulography.

The postoperative course was pretty much a remission for around five months, then after that there were three episodes of recurrence within one year, all managed with antibiotic therapy and also incision and drainage of the abscesses, and later some steroid anti-inflammatory drugs too.

Because these inflammatory infectious relapses kept coming back, a routine fistulography was done, this showed a transverse fistulous tract that seemed to be intrapetrous, going upward and kind of overhanging the mastoid cells (Figure 1).

Medical treatment was maintained for one year, after each infectious episode, until recovery.

A brain magnetic resonance imaging (MRI), done because of seizure activity, showed a right parieto-occipital communicating porencephaly, along with hemispheric collapse and meningeal contrast enhancement yet no formal identification of a fistulous tract (Figure 2).

Illustration of the brain MRI performed

On the contrast-enhanced sequence (E and F) we see right temporo-parieto-occipital leptomeningeal contrast enhancement that matches leptomeningitis, as a result

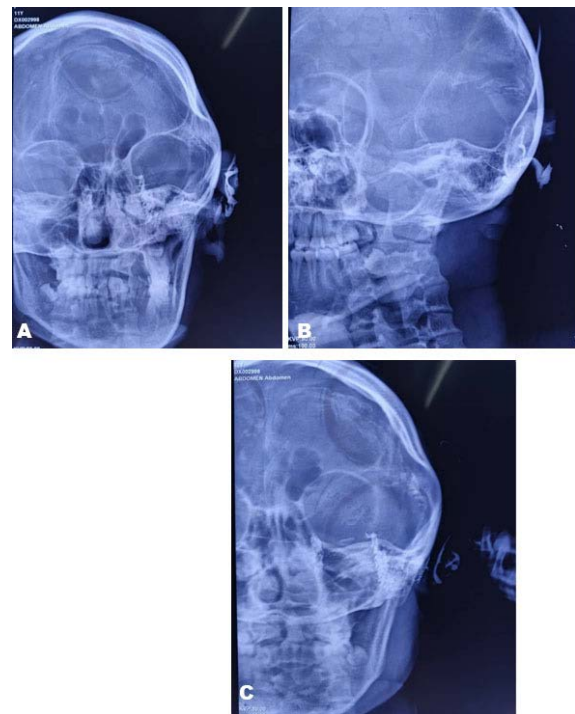


Figure 1: Fistulography in the frontal views (A and C) and oblique view (B) showing a complex fistulous tract with a main tract extending to the left petrous apex.

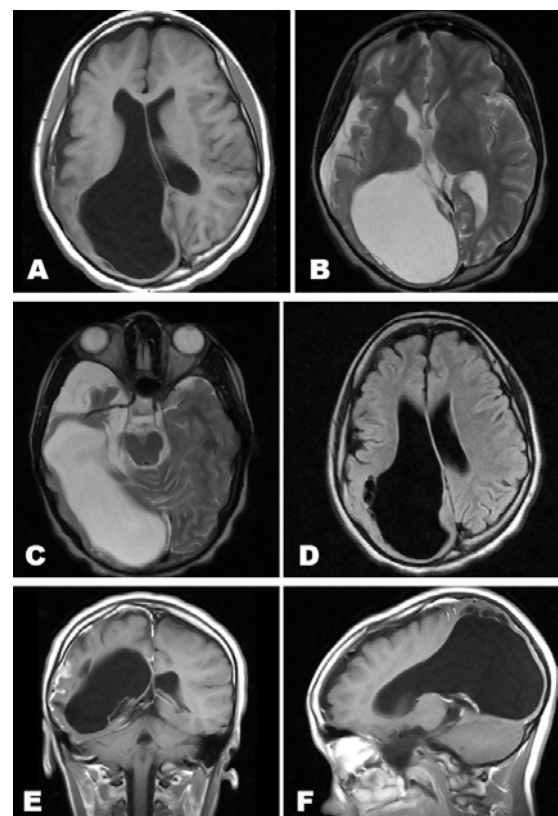


Figure 2: Brain MRI showing a large parenchymal cavity, meaning localized destruction of the cerebral parenchyma, in the right parieto-occipital area. Around it there are microcavities inside the parenchyma, with a bit of localized cortical atrophy, and also an arachnoid cyst situated in the anterior part of the right temporal lobe (Sylvian fissure). Altogether this setup constitutes irritative brain spines (A–D).

of disruption of the blood brain barrier, so it is sort of a blood–brain barrier (BBB) issue.

Because there was no active fistula reoperation was not pursued, and in a sense there was nothing target. Currently, two years have passed without any recurrence, so the fistula looks inactive anymore (no fistulous tract was found on MRI). Pure-tone audiometry demonstrated normal hearing, and renal plus pre-helical ultrasound showed, respectively, a normal urinary tract, and fibrosis in the pre-helical region. That said, the patient still has academic delays, mainly because of memory difficulties.

DISCUSSION

The aim of this article was to show how medical imaging can be really useful when dealing with a complicated prehelix fistula and, in this situation, with management that involved recurrence as well.

Even if diagnosing a prehelix fistula is usually based on clinical observation, and routine imaging is not always needed, once the case gets complicated and starts coming back, the usefulness of medical imaging becomes quite obvious.

In fact, the literature describes that several imaging studies are recommended. For example, high resolution ultrasound is often the preferred option, particularly in children, because it helps confirm the diagnosis, clarify the connection with the superficial temporal artery and cartilage, and also detect other related anomalies when certain syndromes are involved [6]. Computed tomography (CT) scanning with contrast injection directly into the fistula is also helpful, mainly for surgical planning of complex lesions, since it can indicate how deep the fistula tract goes [7]. As for MRI, it is the test of choice when the goal is precise mapping of the fistula tunnel and when you need to distinguish it from malformations of the first branchial cleft [8].

In the current clinical case, all three examinations were carried out postoperatively, and they gave very accurate details. During active phase fistulography, using contrast injection, demonstrated a long, deep fistula tract, which matches the idea that the lesion was complex, and it also explains why recurrence occurred after the surgery. Clearly, the surgical approach, ideally, should include full excision of the fistula tract [3, 4]. Two surgical approaches are described: the supra-auricular approach via local excision of the sinus and sinusectomy [3]. Tan et al. [3], 2005 note that the first approach is presently preferred, since it gives the best results overall.

Meanwhile, MRI has also shown an association between this congenital malformation and brain malformations. In particular, it has been described that prehelix fistula might come alongside other conditions or syndromes in about 3% to 10% of patients, especially deafness and branchio-oto-renal syndrome [9], even though a link with brain malformations has not been reported in the available literature demonstrating the value of medical imaging. Also, renal ultrasound plus pure-tone audiometry came back normal.

Finally, MRI was used to confirm that the issue had resolved, showing no fistulous tract. Ultrasound likewise demonstrated perilesional fibrosis, which suggests the fistula was no longer active. The learning difficulties and memory problems experienced by the patient are consistent with MRI findings, particularly the localized parenchymal destruction of cerebral parenchyma.

CONCLUSION

This clinical case report demonstrates that medical imaging is a cornerstone of the surgical strategy in cases of recurrence or diagnostic uncertainty regarding a prehelix fistula. It enables the complete excision of the fistula tract and is essential for postoperative surveillance and the assessment of associated congenital anomalies.

REFERENCES

1. Kim HJ, Lee JH, Cho HS, Moon IS. A case of bilateral postauricular sinuses. *Korean J Audiol* 2012;16(2):99–101.
2. Leloup P, Malard O, Stalder JF, Barbarot S. Congenital cysts and fistula of the face and neck. [Article in French]. *Ann Dermatol Venereol* 2012;139(12):842–51; quiz 840, 852.
3. Tan T, Constantinides H, Mitchell TE. The preauricular sinus: A review of its aetiology, clinical presentation and management. *Int J Pediatr Otorhinolaryngol* 2005;69(11):1469–74.
4. Leopardi G, Chiarella G, Conti S, Cassandro E. Surgical treatment of recurring preauricular sinus: Supra-auricular approach. *Acta Otorhinolaryngol Ital* 2008;28(6):302–5.
5. Auguste OO, Hugo D, Dieudonne NT. Profile of otological surgery in Kinshasa: 17 years of experience at Saint Joseph Hospital in Kinshasa/Limete, Democratic Republic of the Congo. *Biomed J Sci & Tech Res* 2025;63(3):BJSTR.MS.ID.009892.
6. Ahuja AT, Marshall JN, Roebuck DJ, King AD, Metreweli C. Sonographic appearances of preauricular sinus. *Clin Radiol* 2000;55(7):528–32.
7. Widodo DW, Anatriera RA, Tunggadewi AP, Yunus RE. Recurrent preauricular fistula surgery guided by fistulography. *Journal of Pediatric Surgery Case Reports* 2022;81:102294.
8. Parillo M, Mancuso V, Vaccarino F, Zobel BB, Mallio CA. MRI findings of preauricular sinus: A case report. *Discover Imaging* 2024;1:2.
9. Scheinfeld NS, Silverberg NB, Weinberg JM, Nozad V. The preauricular sinus: A review of its clinical presentation, treatment, and associations. *Pediatr Dermatol* 2004;21(3):191–6.

Author Contributions

Auguste Oluku Omadjela – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the

work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Stéphane Tongo Yanda – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Guarantor of Submission

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Consent Statement

Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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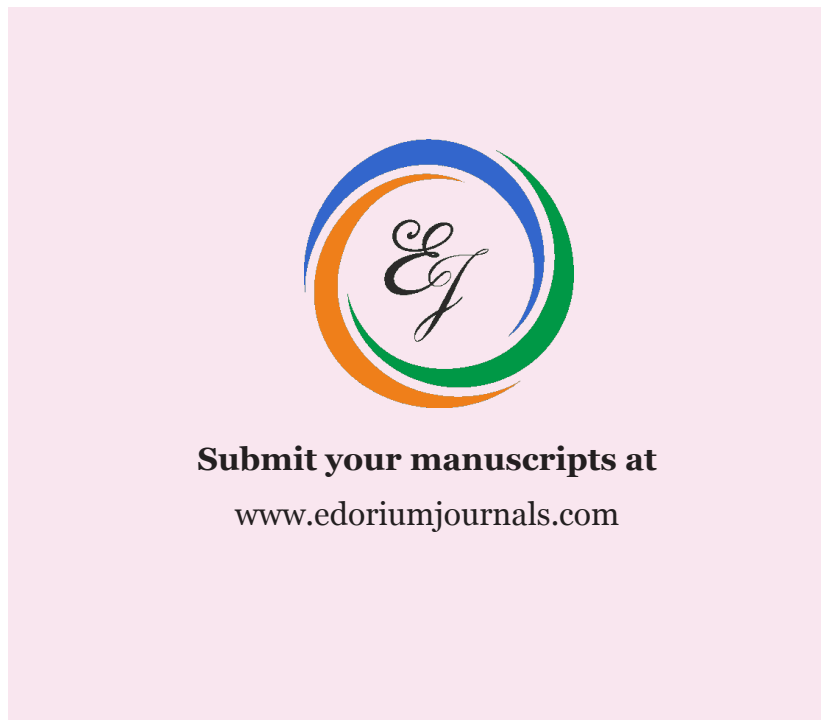
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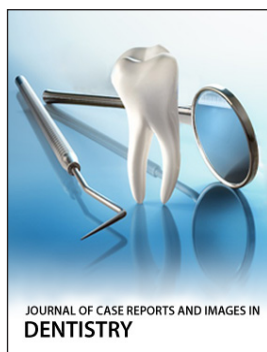
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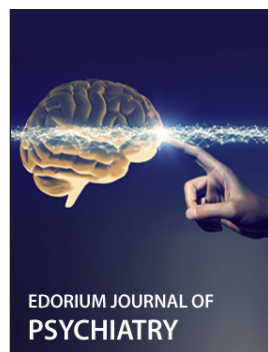
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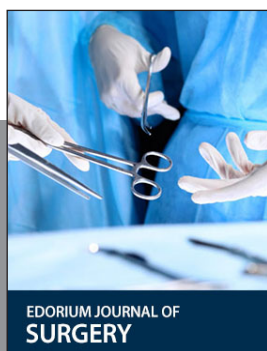
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