



# A Preauricular Swelling Presented as Fibro collagenous Nodule – A Rare Case Report

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## KEYWORDS

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## ABSTRACT:

Preauricular sinuses and congenital anomalies resulting from imperfect fusion or incomplete development of auricular hillocks are often asymptomatic but can lead to complications such as infection, necessitating surgical intervention. We report a rare case of a 33-year-old female presenting with swelling in the preauricular region persisting for a decade, accompanied by pain and discomfort. Clinical examination revealed palpable, tender swelling with no visual manifestation, prompting low-dose CT imaging that indicated sinusitis-related findings in the maxillary sinus and incidental calcification in the left temporal scalp. Histopathological analysis confirmed the presence of a calcified collagenous nodule following excision and biopsy under local anaesthesia. This case highlights the challenges in diagnosing and managing preauricular sinus anomalies and emphasises the importance of timely intervention in symptomatic cases. Further research is required to elucidate the pathogenesis, associated syndromes, and optimal treatment strategies for preauricular sinus anomalies.

## 1. Introduction

Preauricular sinuses were initially documented by Heusinger.<sup>1</sup> These sinuses are congenital anomalies arising from imperfect fusion or incomplete development of the six auricular hillocks.<sup>2</sup> Approximately one-third of individuals with preauricular sinuses are asymptomatic and do not necessitate intervention.<sup>3</sup> However, in cases of infection, surgical excision of the preauricular sinus is deemed necessary. The prevalence of preauricular sinus varies significantly between different racial and ethnic groups. In the United States, the prevalence ranges from 0.1% to 0.9%, whereas in England, it is reported to be 0.9%. Taiwan exhibits a higher prevalence, ranging from 1.6% to 2.5%, and among Asian populations, it occurs in approximately 4-6% of individuals. Certain regions of Africa show even higher prevalence rates, ranging from 4% to 10%. For instance, in Nigeria, specifically in Ilorin, northern Nigeria, the prevalence has been documented at 9.3%.<sup>4-9</sup>

The distribution of preauricular sinus occurrence suggests a potential hereditary component, although

sporadic cases also exist.<sup>10-12</sup> During development, the external ear forms from six eminences situated along the mandibular and hyoid margins of the first external groove. Malformations arise when these tubercles fail to fuse adequately, or when some tubercles (hillocks) experience abnormal growth. This developmental anomaly can manifest as a congenital preauricular sinus.<sup>2,3,13</sup> Typically, preauricular sinuses are asymptomatic unless complications, such as infection, occur.

Limitations in diagnosing and effectively treating preauricular sinus abscesses primarily stem from diagnostic challenges. Given that preauricular sinuses are often asymptomatic when not infected, they may go unnoticed during routine ear examinations.<sup>1</sup> Furthermore, symptomatic patients with preauricular sinus abscesses may not seek medical attention promptly because of the condition being relatively less troublesome and lack of awareness regarding its presence. Additionally, preauricular sinus abscesses are infrequently discussed in medical literature, further



contributing to a lack of awareness among healthcare providers regarding this condition. As a result, many physicians remain unaware of the existence of preauricular sinuses and their potential complications.

We present the case of a 33-year-old female with a history of swelling, pain, and discomfort in the preauricular region that persisted for 10 years. Upon diagnosis, the patient was found to have a calcified fibrocollagenous nodule representing the preauricular sinus.

## 2. Case Representation

A 33-year-old female presented with a swelling of the preauricular region persisting for 10 years. The patient complained of pain and foreign-body sensations associated with swelling. On examination, the swelling was not visually apparent but palpable. It was tender on palpation, lacked warmth and did not exhibit mobility, and the swelling was not consistent.

## 3. Observations

A low-dose CT scan revealed several findings: minimal mucosal thickening in the right maxillary sinus indicative of mild sinusitis, bilateral inferior turbinate hypertrophy with mucosal thickening suggesting chronic inflammatory changes, pneumatization of the bilateral lamella within normal limits, and hypoplasia of the bilateral frontal sinuses as incidental findings (Figure 1). Additionally, an oval calcification measuring approximately  $1.0 \times 0.7$  cm was noted in the left temporal scalp in the preauricular region, likely representing a benign calcified lesion. Clinical correlation and further evaluation are recommended, particularly for addressing symptomatology related to Sino nasal findings and characterising scalp calcification through additional imaging or monitoring, if necessary.



**Figure 1:** Patient Low-dose CT report before surgery representing sinus nodule in the pre-auricular region

Given the chronicity of swelling and patient discomfort, a decision was made to perform excision and biopsy under local anaesthesia with Laryngeal Mask Airway (LMA) insertion.

## 4. Procedure and Findings:

The swelling was excised during the procedure and a biopsy was performed. Histopathological examination of the specimen revealed a calcified collagenous nodule, which confirmed the diagnosis. Surgical removal of the sinus nodule was performed with anaesthesia and patient consent (Figure 2).

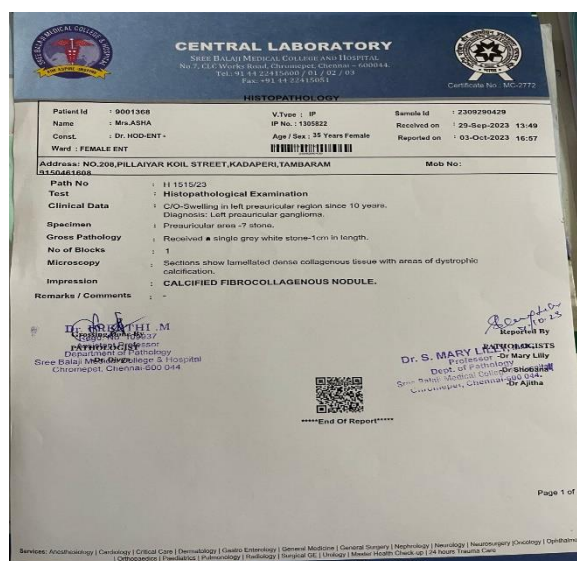


**Figure 2:** Intraoperative image: Demonstrating removal of fibro collagenous nodule excision

**Postsurgical outcome:** The patient was discharged with postoperative prophylaxis along with antibiotics (Figure 3).



**Figure 3:** Postoperative follow-up of the patient



**Figure 4:** Histopathological examination report showing fibro collagenous nodule

## 5. Discussion

The development of the external ear involves six mesenchymal proliferations, known as hillocks, with three originating from the caudal edge of the 1st branchial arch and three from the cephalic edge of the 2nd branchial arch. Notably, the tragus and anterior crus of the helix margin form from the 1st arch, whereas the remaining parts of the auricle arise from the 2nd arch. The aetiology of preauricular sinuses revolves around three main theories such as incomplete fusion of the 1st arch hillocks, isolation of ectodermal folds during auricle formation, and defective closure of the dorsal part of the first branchial cleft.<sup>14</sup>

Clinically, preauricular sinuses and anomalies associated with the first branchial cleft can exhibit similar presentations, often characterised by an opening anterior to the ascending limb of the helix. Less frequently, these sinuses may appear along other areas such as the lateral or posterior surface of the helicine crus, the superior posterior margin of the helix, the tragus, or the lobule.<sup>15</sup>

In the current case, a preauricular sinus was observed. An elliptical incision was made in the skin around the sinus pit and the sinus was opened. The swollen nodule and fibro collagenous nodules were removed. A similar case was also presented by Nagalingeswaran et al., however in their case the fibro collagenous nodule was presented at the intra-auricular region which was treated with a

similar surgical procedure.<sup>16</sup> The prospective study conducted by Adegbiyi et al., reported preauricular sinus in 184 patients out of 4170 patients. Abscess was the most common case presentation and surgical excision was the most common treatment approach adapted for treatment.<sup>17</sup>

In our study, we observed no hearing loss or impairment in the patient. However, research has highlighted associations between preauricular sinus and certain syndromes.<sup>18,19</sup> In a study conducted by Roth et al., it was observed that infants with preauricular skin tags or ear pits had a prevalence of hearing impairment at a rate of 8 per 1000.<sup>19</sup>

## 6. Conclusion

In conclusion, we present a rare case of an infra-auricular sinus that persisted for 10 years in a 33-year-old female. The patient experienced pain and discomfort associated with the swelling, leading to the decision to perform excision and biopsy under local anaesthesia with LMA insertion. Histopathological examination revealed a calcified collagenous nodule, which confirmed the diagnosis. This case underscores the importance of considering chronicity and patient discomfort in the management of such lesions and advocating timely intervention when necessary. In addition, this case contributes to the existing literature on preauricular sinus anomalies, highlighting the varied clinical presentations and management strategies for these congenital anomalies. Further research and long-term follow-up studies are warranted to enhance our understanding of the preauricular sinus pathogenesis, associated syndromes, and optimal treatment approaches.

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