Section: Pathology

Case Series

CARTILAGINOUS CHORISTOMA OF THE TONSIL - AN INCIDENTAL DIAGNOSIS: A CASE SERIES

Gummalla Swetha[1], G Santhoshi[2*], C Sandhya Rani[3], Tadepally Pratyusha[4]

[1]Assistant professor, Department of Pathology, RVM Institute of Medical Sciences and Research Centre, Mulugu, Siddipet, Telangana, India.
[2]Associate professor, Department of Pathology, RVM Institute of medical Sciences and Research Centre, Mulugu, Siddipet, Telangana, India.
[3]Assistant professor, Department of Pathology, RVM Institute of Medical Sciences and Research Center, Mulugu, Siddipet, Telangana, India.
[4]Post graduate, Department of Pathology, RVM institute of Medical Sciences and Research Centre, Mulugu, Siddipet, Telangana, India.

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Corresponding Author:
Dr. G. Santhoshi,
Associate professor, Department of pathology, RVM institute of medical sciences and research centre, Mulugu, Siddipet, Telangana, India.
Email: gajavellisanthoshi@gmail.com

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ABSTRACT

Choristomas are aggregates of microscopically normal cells or tissues in aberrant locations. Cartilaginous choristoma is an extremely rare benign lesion characterized by the presence of heterotopic cartilage in non-cartilaginous tissues. Within the head and neck region, these lesions are most frequently encountered in the tongue and soft palate, with tonsillar involvement being an uncommon occurrence. This case series details nine patients, of them 6 were females and 3 were males, who underwent tonsillectomy for a clinical diagnosis of chronic tonsillitis. Histopathological examination of the excised tonsils revealed incidental cartilaginous choristoma in all cases. This case series aims to underscore the infrequent presentation of this lesion in the tonsils and to elucidate its clinicopathological characteristics.

Keywords: Choristoma, Cartilaginous choristoma, Tonsil, Chronic tonsillitis, Chronic follicular tonsillitis, Heterotopic cartilage.

INTRODUCTION

Choristoma is defined as a mass of normal tissue located in an abnormal location, which is developmentally displaced. Choristoma is a tumor like mass which is an ectopic rest of normal tissue due to embryological developmental defect. In head and neck, they may be found in pharynx, hypopharynx, oral cavity and middle ear. Frequently seen on tongue, other areas include soft palate and gingiva. Osseous and cartilaginous choristomas occur more commonly in the dorsum of the tongue.[1] The oral cavity may harbor cartilage, glial tissue, salivary glands, gastric mucosa, bone, thyroid tissue, and sebaceous glands. [2,3]

Cartilaginous choristoma, consisting of heterotopic cartilage, is an uncommon entity, particularly in the tonsils. The precise etiology of cartilaginous choristomas remains unclear. Proposed theories including congenital malformation, metaplastic changes due to chronic irritation, or embryological displacement.[12,13,14] Clinically, tonsillar cartilaginous choristomas often present a diagnostic challenge, frequently mimicking chronic tonsillitis due to the absence of specific signs or symptoms. This case series presents nine patients who received a diagnosis of cartilaginous choristoma in the tonsils following routine tonsillectomy, performed for chronic tonsillitis.

The neck region is known for various embryological anomalies on account of its complex development.[7] Choristoma is a developmental anomaly of the second pharyngeal arch, which refers to the presence of histologically normal tissue or cells at an abnormal location.[16]

MATERIALS AND METHODS

This non- interventional, cross-sectional, retrospective study discussed a total of nine cases, which are diagnosed as cartilaginous choristoma of the tonsil. Study conducted at RVM Institute of Medical Sciences and Research Center, Telangana from January 2023 to January 2025.

The tonsillectomy specimens sent to the Department of Pathology were fixed in 10% neutral buffered formalin with adequate labelling and clinical data on the requisition form. The specimens

were subjected to standard processing in the processor, followed by paraffin embedding, and adequate sections were taken for hematoxylin & eosin (H&E) staining. The stained slides were mounted using dibutyl phthalate polystyrene xylene (DPX) and studied under the microscope. Special staining was performed wherever necessary. Of the total bilateral tonsillectomy specimens received which are 270 in the said period of two years, 9 cases were showing cartilaginous choristoma.

The details of the presented 9 cases were tabulated, including the age, gender, presenting complaints, local examination findings, diagnosis given, along with the additional findings in the microscopy and the histopathological images were included.

RESULTS

Table 1: Shows age and gender distribution of the cases

Case no	Age (in years)	Gender
1	13	F
2	9	M
3	21	M
4	13	F
5	14	F
6	19	M
7	24	F
8	15	F
9	10	F

Out of nine cases the common age group of the incidence of cartilaginous choristoma is between 10-15 years and the younger case age is 9 years and older case age is 24 years. The patient cohort included six females and three males, with a male to female ratio of 1:2.

Table 2: Shows Presenting complaints and oral examination findings of the cases

Case no	Presenting complaints	Oral examination findings
1	Sore throat and Dysphagia	Red swollen tonsils with grade I tonsillar hypertrophy
2	Fever and sore throat	Swollen tonsils with white patches on the surface and pharyngeal erythema
3	Dysphagia and odynophagia	Red swollen tonsils with grade II tonsillar hypertrophy
4	Dysphagia and sore throat	Grade I tonsillar hypertrophy with pharyngeal erythema and swollen uvula
5	Dysphagia and nasal obstruction with snoring	Red swollen tonsils with grade II tonsillar hypertrophy
6	Dysphagia and odynophagia	Grade I tonsillar hypertrophy with pharyngeal erythema
7	Dysphagia and bad breath	Red swollen tonsils with grade I tonsillar hypertrophy and white patches on the surface
8	Fever, Dysphagia and odynophagia	Grade II tonsillar hypertrophy with white patches on the surface and pharyngeal erythema
9	Fever, sore throat and nasal obstruction with snoring	Red swollen tonsils with grade III tonsillar hypertrophy

Out of nine cases the most common presenting complaint is dysphagia with next common one sore throat and two cases had complaints of nasal obstruction with snoring. Common finding in the oral examination of the nine cases revealed Red swollen tonsils with grade I tonsillar hypertrophy and three cases showed grade II tonsillar hypertrophy and one case with grade three tonsillar hypertrophy.

Table 3: Shows the Histopathological diagnosis and the additional microscopic findings in the cases

Case no	Histopathological diagnosis	Additional microscopic findings
1	Chronic follicular tonsillitis with cartilaginous choristoma	-
2	Chronic follicular tonsillitis with cartilaginous choristoma	Colonies of Actinomyces
3	Chronic follicular tonsillitis with cartilaginous choristoma	Colonies of Actinomyces and an inclusion epidermoid cyst
4	Chronic follicular tonsillitis with cartilaginous choristoma	Areas of calcification with no mature bone formation
5	Chronic follicular tonsillitis with cartilaginous choristoma	Colonies of Actinomyces
6	Chronic follicular tonsillitis with cartilaginous choristoma	Colonies of Actinomyces
7	Chronic follicular tonsillitis with cartilaginous choristoma	-
8	Chronic follicular tonsillitis with cartilaginous choristoma	Colonies of Actinomyces and areas of calcification with no mature bone formation
9	Chronic follicular tonsillitis with cartilaginous choristoma	-

Histopathological examination of all the nine pair of tonsils, tissue was lined by stratified squamous epithelium with an underlying lymphoid tissue showing follicular hyperplasia with reactive changes and surrounding minor salivary acini. Also, the sub epithelium showed islands of mature hyaline cartilage surrounded by lymphoid follicles and a histopathological diagnosis of cartilaginous choristoma was made.

All the cases are given the histopathological diagnosis of Chronic follicular tonsillitis with cartilaginous choristoma in common with other additional microscopic finding

The common additional microscopic finding is presence of Colonies of Actinomyces in five out of nine cases; one out of 9 cases showed an inclusion epidermoid cyst and two out of 9 cases showed areas of calcification with no mature bone formation.

Histopathological pictures of the discussed cases are been provided except for the additional findings of Colonies of Actinomyces, as they are not present in the same microscopic field as the cartilaginous islands.

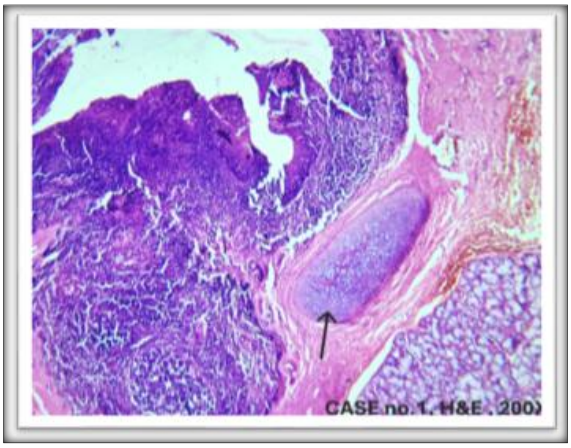

Figure 1: Showing tonsil with lymphoid tissue, salivary acini and arrow mark depicting island of mature cartilage

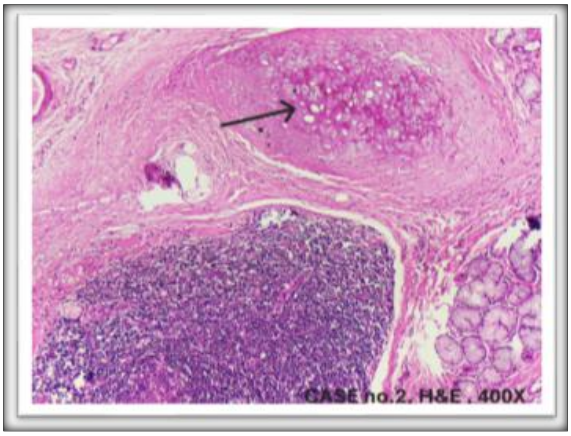

Figure 2: Showing tonsil with lymphoid tissue, salivary acini and arrow mark depicting island of mature cartilage

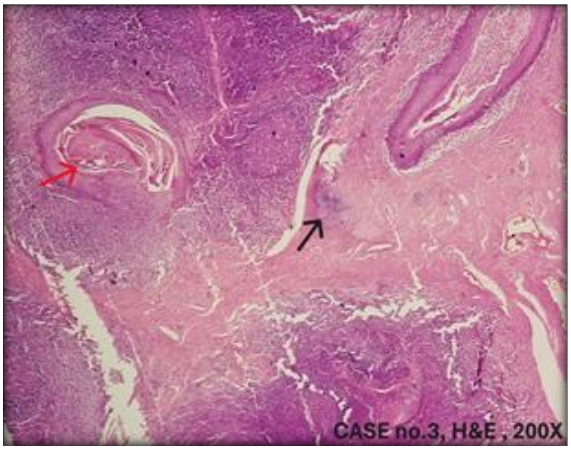

Figure 3: Showing tonsil with lymphoid tissue, black arrow mark depicting island of mature cartilage and red arrow mark depicting epidermoid cyst

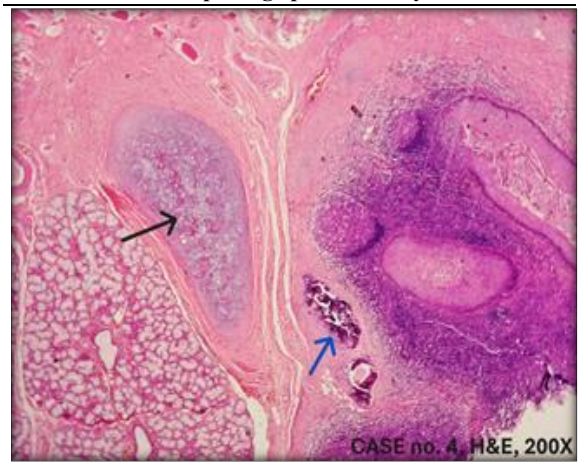

Figure 4: Showing tonsil with lymphoid tissue, salivary acini, black arrow mark depicting island of mature cartilage and blue arrow mark depicting calcification

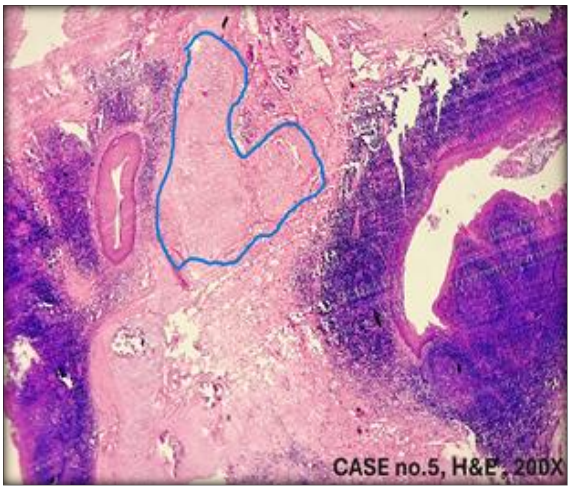

Figure 5: Showing tonsil with lymphoid tissue and blue marking depicting island of mature cartilage

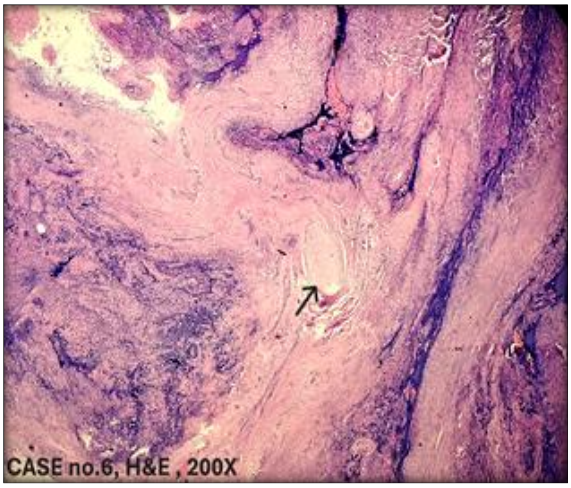

Figure 6: Showing tonsil with lymphoid tissue and arrow mark depicting island of mature cartilage

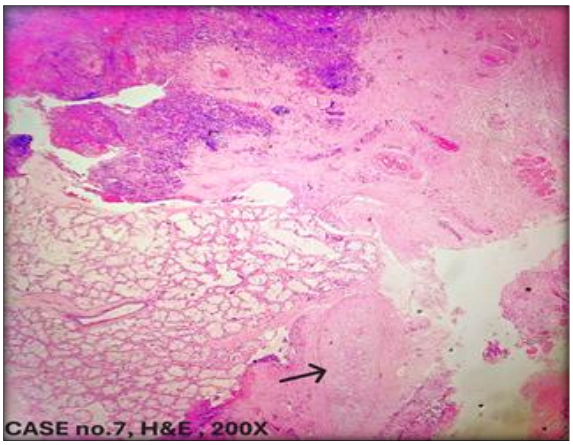

Figure 7: Showing tonsil with lymphoid tissue and black mark depicting island of mature cartilage

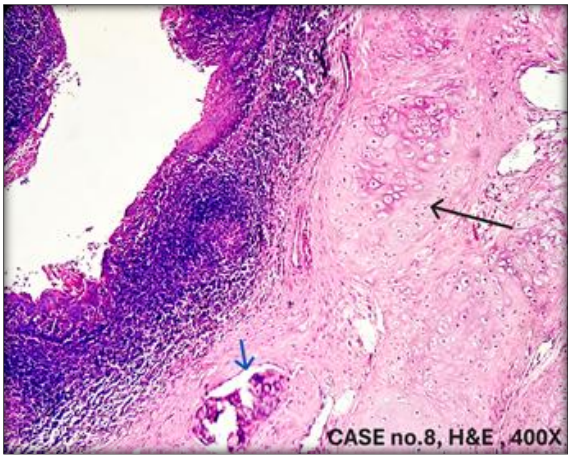

Figure 8: Showing tonsil with lymphoid tissue, black arrow mark depicting island of mature cartilage and blue arrow mark depicting calcification

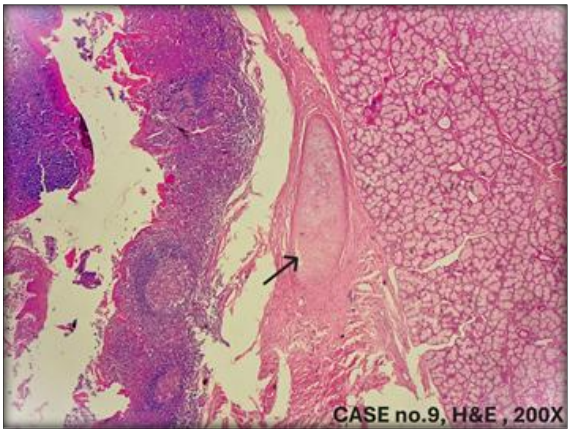

Figure 9: Showing tonsil with lymphoid tissue, salivary acini and arrow mark depicting island of mature cartilage

DISCUSSION

Cartilaginous choristoma is a rare benign lesion characterized by the presence of mature cartilage in abnormal locations. Cartilaginous choristoma may be a developmental anomaly due to its common occurrence in the head and neck region. It was first defined by Berry in 1890.[6,7,8] The age of the diagnosis for these patients varied greatly, ranging from 10 to 80 years.[3,6,5] Chondroid choristoma of the tongue mostly occur in females, while no sex predilection has been observed in palatine tonsil.[5]

Usually, they are observed as incidental findings during histopathological examination of tonsillectomies performed due to chronic tonsillitis. Erkilic et al. (2002) reported an incidence of 3% on tonsillectomy specimens.[9] Sulhyan et al. (2016) in their study on tonsillar lesions found the incidence to be 2.84%.[10]

Cartilaginous choristoma of the oral cavity is more frequently seen in the tongue, followed by buccal mucosa and soft palate. They have been reported in several locations as cervix, endometrium, breast tissue, middle ear, pharynx and hypopharynx.[3,7,11]

Several hypotheses have been proposed to explain the pathogenesis of choristoma. Haemel et al. (2008) concluded that it arises from mesenchymal progenitor cells having multilineage potential, which were able to differentiate into various mesenchymal cell types.[12] Lindholm et al. (1973) proposed that chemical or physical changes induced by chronic inflammatory processes could be responsible for the liberation of osteogenic substances, which stimulate heterotopic proliferation of cartilage.[13] The lateral part of the second pharyngeal arch leads to the development of tonsils. Partihiban et al. (2011) postulated that choristomas of the tonsil arise from embryological anomaly of the second pharyngeal arch, which leads to the occurrence of abnormal mesenchymal tissue in the tonsil.[14]

Cartilaginous choristoma should be distinguished from cartilaginous metaplasia, which occurs in the

soft tissue beneath the ill-fitting dentures. It is histologically characterized by diffuse deposits of calcium and scattered cartilaginous cells arranged in various stages of maturation in single or clustered cartilaginous foci.[15,17]

The cases presented in this series represent incidental findings of cartilaginous choristoma during histopathological examination of tonsils excised for chronic tonsillitis. Notably, none of the patients exhibited specific symptoms suggestive of a choristoma, with the diagnosis established purely on pathological grounds. This observation suggests that cartilaginous choristomas may be underdiagnosed, as routine clinical and radiological evaluations are unlikely to detect these lesions.

Histopathologically, cartilaginous choristomas are characterized by the presence of mature hyaline cartilage within non-cartilaginous tissues, often surrounded by fibrous tissue. They must be distinguished from other cartilaginous neoplasms, such as chondromas or low-grade chondrosarcomas, which can occur in the head and neck region but are associated with more aggressive clinical behavior. In contrast, cartilaginous choristomas are benign and do not require further treatment once excised.

Given the benign nature of cartilaginous choristomas and the absence of recurrence following complete excision, no additional therapy is warranted beyond surgical removal. However, it is important for pathologists to recognize this rare entity, as misdiagnosis may lead to unnecessary concern or overtreatment.

CONCLUSION

In summary, cartilaginous choristoma of the tonsil represents a rare, benign condition that is frequently identified as an incidental finding during the histopathological examination of tonsillectomy specimens obtained for chronic tonsillitis. The cases detailed in this series emphasize the necessity of thorough pathological assessment of all excised tissues, irrespective of the apparent simplicity of the clinical diagnosis. Heightened awareness of this entity among clinicians and pathologists is crucial. Such awareness facilitates accurate diagnosis, helps to prevent misdiagnosis, and ensures appropriate clinical management, ultimately avoiding unnecessary patient anxiety and potential overtreatment.

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