Benign chondroid syringoma affecting the upper lip: Report of a rare case and review of literature

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**INTRODUCTION**

Chondroid syringoma (CS) is a tumor arising from the sweat glands or pilosebaceous unit. CS was first described by Billroth in 1859.[1] These lesions were initially referred to as mixed tumors of the skin of both epithelial and mesenchymal origin.[2] The term “Chondroid syringoma” was coined by Hirsch and Helwig in 1961 based on the histologic presentation.[3] CS is a rare tumor with an incidence of <0.098%. The diagnosis of CS is mainly based on the histopathologic examination. A search through the existing literature was carried out for all the reported cases of CS at various sites which revealed very few cases of CS on the upper lip [Table 1].[4-14]

**CASE REPORT**

A 35-year-old male patient reported to the outpatient department of our institute with a complaint of a mass on the left side of the upper lip. The lesion was present for a duration of 10 years. The lesion was small, to begin with and slowly progressed to the present size. Clinical examination revealed an asymptomatic, firm subcutaneous mass measuring 3.5 cm × 1 cm × 0.7 cm on the left side of the upper lip [Figure 1]. The patient wanted it to be removed due to esthetic reasons. A biopsy was advised for diagnostic confirmation. After obtaining an informed patient consent, a complete surgical excision was done under local anesthesia.
using an intraoral approach to avoid scarring [Figure 2]. The wound was closed primarily, and the healing was uneventful. There is no sign of recurrence till date.

On gross examination, the lesion was grayish white in color with a smooth and glistening surface and was firm in consistency. Cut surface revealed whitish solid areas with small foci of hemorrhage. Histopathologic examination of the tissue specimen revealed a well-encapsulated lesion [Figure 3] composed of benign epithelial cells arranged in the form of sheets, nests and tubuloductular structures with a prominent chondroid and myxoid stroma [Figure 4]. Tubuloductal structures of varying size and shape lined by a double layer of epithelial cells and adjacent stromal hyalinization was evident [Figure 5]. Some showed cystic dilatation filled with keratin flakes and squamous metaplasia [Figure 6]. Few mucoid faint basophilic areas with scattered stromal cells surrounded by halo resembling cartilage (pseudo cartilage) were also seen [Figure 4]. Occasional hair shafts were also noted. Based on these findings, a final diagnosis of an apocrine variant of benign CS with squamous metaplasia was made.

**DISCUSSION**

CS is a benign tumor derived from skin appendages commonly affecting the middle-aged and elderly males. CS is a slow-growing painless lesion and patients get it removed mainly for esthetic reasons. These lesions present themselves as solitary, well-delineated, slow-growing, painless, nonulcerated, subcutaneous or intracutaneous nodules sometimes with surface telangiectasia and sessile base. Nose is the most common site in the head and neck region followed by the skin of the cheek and the upper lip. Reports of CS on the eyes, eyelid, hands, foot, axillary area, abdomen, penis, vulva, scrotum, scalp and back have also been published in the literature.[4,15]

Clinically, the diagnosis of CS is quite challenging and most often overlooked or mistaken with other lesions such as dermoid or sebaceous cysts, compound nevus, neurofibroma, histiocytoma, pilomatrixoma, dermatofibroma, basal cell carcinoma and seborrheic keratosis.[5,16]

CS manifests in two forms. Benign form is more frequently reported in males than females with a ratio of

| Reported year | Author | Number of cases | Location | Patient details (age in years) |
|---------------|--------|----------------|----------|-------------------------------|
| 1959          | Stout and Gorman[4] | 16 | Upper lip | - |
| 1976          | Triantafyllou and Rapidis[5] | 2 | Lower lip | - |
| 1986          | Adlam and Wood[6] | 1 | Upper lip | - |
| 2002          | Bekerecioglu et al.[7] | 3 | Upper lip | 27/male, 28/female, 24/female |
| 2003          | Shimizu et al.[8] | 1 | Upper lip | 68/male |
| 2004          | Arikan et al.[9] | 1 | Upper lip | 73/male |
| 2010          | Dubb and Michelow[10] | 1 | Upper lip | 58/female |
| 2015          | Girgis et al.[11] | 1 | Upper lip | 23/male |
| 2016          | Shilpa et al.[12] | 1 | Upper lip | 48/male |
| 2016          | Kundu et al.[13] | 1 | Upper lip | 46/male |
| 2016          | Min et al.[14] | 5 | Upper lip | 44/male, 39/male, 47/male, 64/male, 65/female |
| 2017          | Reddy et al. (present case) | 1 | Upper lip | 35/male |
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1.3:1 to 1.5:1 while the malignant form occurs more often in females.[2,4,17] This condition can affect 20 to 70-year-old individuals but is more common in the middle and elderly age group. CS has been reported in children as well.[18]

Imaging modalities such as magnetic resonance imaging, ultrasound[19] and computed tomography are not very suggestive of CS and can be used to determine the origin, depth of invasion and relation of the lesion with the adjacent structures.[20]

Fine-needle aspiration cytology and cytologic examination under May–Grünwald–Giemsa staining, hematoxylin and eosin staining and Papanicolaou staining are also been reported.[13]

Definitive diagnosis can be established only through histopathologic examination.

Five histological criteria have been proposed for the diagnosis of CS as follows:[5]

- Nests of cuboidal and polygonal cells
- Intercommunicating tubuloalveolar structures lined with two or more rows of cuboidal cells
- Ductal structures composed of one or two rows of cuboidal cells
- Occasional keratinous cysts
- A matrix of varying composition.

CS may display all these or few of these features. It has histologic similarities with the pleomorphic adenoma of the salivary gland. Some contrasting features between CS and pleomorphic adenoma have been summarized in Table 2.[12,21]

CS is composed of both the epithelial and mesenchymal components. Epithelial cells are arranged in sheets, islands,
Epithelial cells arranged in tubulocystic structures lined by single or double rows. The cells of the peripheral layer showed proliferation into the stroma which has a mucoid, faintly basophilic appearance suggestive of chondroid syringoma.²¹

Table 2: Contrasting features between benign chondroid syringoma and pleomorphic adenoma

| Features                  | Benign chondroid syringoma                                      | Pleomorphic adenoma                                      |
|---------------------------|------------------------------------------------------------------|----------------------------------------------------------|
| Origin                    | Sweat glands                                                     | Salivary glands                                           |
| Incidence                 | Very rare tumor                                                  | Most common benign salivary gland                         |
| Histogenesis              | Myoepithelial cell, Merkel cell²¹                                | Intercalated duct reserve cells, myoepithelial cells      |
| Site                      | Can occur in sites other than head and neck area (like extremities) | Rare in sites other than head and neck region            |
| Age                       | Middle aged and elderly individuals                              | Middle-aged individuals                                   |
| Sex                       | Benign form is more common in males                              | More common in females                                     |
| Size                      | Usually <0.5-3 cm                                                | Usually 2-6 cm                                            |
| Histopathology            | Epithelial cells show differentiation towards adnexal structures (i.e., hair follicle, sebaceous gland, apocrine sweat gland and eccrine sweat gland) | Adnexal structures not commonly seen                     |
| Histopathology            | Serous and mucous acinar cells not evident                       | Serous and mucous acinar cells are evident                |
| Histopathology            | Epithelial cells arranged in tubulocystic structures lined by single or double rows | Epithelial cells arranged in sheets, strands, ducts      |

and nests of squamous cells or glandular cells, cords, tubular structures embedded in a fibroadipoid, chondroid, hyaline and mucinous stroma.⁶⁻⁸ Extensive ossification and marrow formation have been reported in CS by Awasthi et al.²²

Two histologic variants of CS have been described by Headington,²³ namely:

- Eccrine type with smaller round lumens, lined by a single row of cuboidal epithelial cells evenly spaced within a myxoid-chondroid stroma and
- Apocrine type with irregular or haphazard distribution of tubular and cystic branching tubules and lumina lined by double rows of epithelial cells - inner cuboidal cells and outer flattened cells.

The inner layer expresses positivity for the epithelial markers such as cytokeratin, epithelial membrane antigen and carcinoembryonic antigen.²⁴ While the outer layer expresses positivity for mesenchymal markers such as vimentin, S-100 protein, neuron-specific enolase, and glial fibrillary acidic protein. The chondroid area was earlier believed to be derived from myoepithelial cells. However, recently, it was concluded to be true cartilaginous tissue with typical chondrocytes confirmed ultrastructurally in the subsequent studies.²⁵ Mills suggested that CS are monoclonal tumors with replicating cells having the ability to differentiate into epithelial and mesenchymal tissues accounting for the histologic variability of CS.²⁶ The presence of Merkel cells (CK20 positivity) in CS showing follicular differentiation supports the hypothesis that Merkel cells may be an integral constituent of follicles. The presence of Merkel cells as a proliferative form in apocrine CS may support the derivation of Merkel cells from folliculo–sebaceous–apocrine germ or their precursor cells, although the origin of Merkel cells (cells with neuroendocrine differentiation) in the skin is not limited to follicular germ.²⁷ Some CS as in the foot may be preceded by trauma. Immunohistochemistry may vary depending on whether CS is an eccrine type or apocrine type. However, some tumors may display both features.²⁷

Malignant CS may arise de novo or in pre-existing benign CS. Although rare, few cases of malignant CS have been reported in the past which show characteristics of aggressiveness, metastasis and recurrence. Features such as increased mitosis, cellular and nuclear pleomorphism, invasive margins, satellite tumor nodules, necrosis, fixation to underlying tissues, excessive mucoid stroma, poorly differentiated chondroid components, rapid growth, and size of more than 3 cm might indicate malignant potential.²⁸⁻³⁰ Malignant CS is more likely to occur on trunk and extremities and are more common in females.³¹⁻³³ There may be local lymph node metastasis (48%) as well as distant metastasis to lung, bone, and brain.³¹⁻³³ Treatment of choice for CS is complete surgical excision with a rim of 4 mm normal tissue. Adjuvant radiotherapy with or without chemotherapy may be advised but is not very beneficial.²³,³⁶ Other treatment options include dermabrasion, electrodissection and vaporization with argon or carbon dioxide laser.²³ Due to the paucity of CS cases, the accuracy and efficacy of various treatment modalities are yet to be ascertained.

**CONCLUSION**

CS should be considered in the differential diagnosis of any subcutaneous nodules, especially in the head and neck region. The diagnosis is often not thought and missed considering the rarity of this adnexal neoplasm. Clinicians must be aware of this condition and should also rule out malignant CS. A careful histopathologic examination is the key to accurate diagnosis of CS.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.
Acknowledgment
We would like to thank Dr. Ph. Madhubala Devi, Professor and Head, Department of Pathology, Regional Institute of Medical Sciences, Imphal, Manipur, for her support.

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Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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