Lipomatous mixed tumor of the skin with predominance of stromal fat

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ABSTRACT
A rare variant of cutaneous chondroid syringoma, with epithelial differentiation composed of apocrine, follicular, and sebaceous components and showing the presence of predominantly lipomatous stroma, is being reported in a 54-year-old female.

Key words: Apocrine sweat gland, chondroid syringoma, folliculo-sebaceous-apocrine unit, lipomatous stroma, mixed tumor of skin

INTRODUCTION
Cutaneous chondroid syringomas are rare tumors that present as small solitary asymptomatic firm intradermal or subcutaneous nodules typically involving the face, head, and neck areas with a male predilection. The first case of a mixed tumor of the skin was reported by Nasse in 1892. Hirsch and Helwig in 1961 in a large series study coined the term “chondroid syringoma” because of the presence of sweat gland elements in a chondroid stroma. There are two types of chondroid syringoma – eccrine and apocrine types according to the epithelial differentiation as per Headington.

Apocrine type is found to be more common with or without folliculo-sebaceous components. Classically, in cases of chondroid syringoma, the stroma is chondromyxoid like pleomorphic adenoma of the salivary gland. Lipomatous differentiation is a metaplastic change of stroma. We report a case of a 54-year-old woman with mixed tumor of the skin showing apocrine and folliculo-sebaceous differentiation and with extensive lipomatous metaplasia of the stroma.

CASE REPORT
A 54-year-old woman presented with a gradually increasing swelling above the upper lip near the angle of mouth since 3 years. On examination, a reddish nodular swelling was noted. The provisional clinical diagnosis was sebaceous cyst/hemangioma. The lesion was excised under local anaesthesia.

We received the specimen in the pathology department as a skin-covered nodular soft tissue mass measuring 1.5 cm × 1.3 cm × 1 cm. Cut section showed gray-white and yellowish areas.

Hematoxylin and Eosin stained sections showed skin with a circumscribed neoplasm composed of epithelial cells arranged in interconnecting cords, tubules, nests, trabeculae, small groups and sheets. There was no connection with the overlying atrophic epidermis. The cells were uniform round to oval with moderate amount of eosinophilic cytoplasm

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and round regular nuclei. In areas, the cells were arranged in double layer and in other areas, groups with peripheral palisading. Small tubular/ductular structures were lined by two layers of epithelial cells, a luminal layer of cuboidal cells, and a peripheral layer of flattened myoepithelial cells. Ductular structures with cuticle around the central lumen were seen interspersed within the tumor cell groups. Some ductular structures were larger, cystically dilated with eosinophilic secretion in the lumen suggesting an apocrine differentiation [Figure 1a-d]. No mitotic figures were present. No necrosis was seen. No retraction artifact seen around the tumor nests.

Another uncommon finding was the presence of lobules of adipocytes of varying sizes in large areas of the stroma (more than 50%) [Figures 2a and 3]. Stroma also showed loose fibro-collagenous connective tissue with focal myxoid change. Many spindle cells, stellate cells and plasmacytoid cells were found scattered in the stroma [Figure 2b]. A minor component of hair follicle-like structures and sebaceous cell differentiation were also noted [Figure 2c and d].

Immuno histochemical (IHC) staining for cytokeratin (CK) showed strong diffuse positivity in epithelial cells. Epithelial membrane antigen (EMA) was positive in the ductular structures [Figure 4a and b]. CD10 was negative in epithelial and stromal cells. Bcl2 was negative in epithelial cells and showed scattered positivity in stromal cells. S100 was positive in the stromal fat cells. Ki 67 showed a low proliferative index (5%) [Figure 4c and d].

**DISCUSSION**

Mixed tumor of the skin can show either eccrine or apocrine differentiation. Apocrine differentiation is reported to be more common than eccrine differentiation.\(^4\) In a study of 25 cases by Salama et al., 22 were of apocrine type and only three were eccrine type.\(^5\)

The present case showed mainly apocrine differentiation. Scattered hair follicle-like structures and small groups of sebocytes were seen. There are case reports of chondroid syringoma with follicular differentiation\(^6\) and folliculo-sebaceous and apocrine differentiation.\(^7\) Some authors consider these lesions as having differentiation toward folliculo-sebaceous-apocrine unit (FSAU).\(^1,7\)

The present case showed a predominant fat cell collection in the stroma (more than 50%). Superficial location of the fat cell clusters and close intermixing with the tumor cells suggested that it is a component of the tumor and not subcutaneous fat. Lipomatous stromal metaplasia in cutaneous chondroid syringoma has been previously reported in English literature.\(^8-10\) Some prefer to name this lesion as a lipomatous mixed tumor of the skin since these tumors do not generally show a chondroid stroma.\(^8,11\) In the present case also, there was no chondroid stroma but, focal areas of myxoid change was noted.

Lipomatous stromal change has been reported by Kazakov et al.\(^1\) and Lin and Liu\(^11\) in 44% and 45% of tumors, respectively. However, extensive lipomatous change, i.e., lipomatous change constituting more

**Figure 1:** (a) Circumscribed neoplasm in the reticular dermis. There is no connection with overlying dermis (H and E, ×40). (b) Neoplasm arranged in sheets with many interspersed small tubular structures (H and E, ×100). (c) Tubular structures show double-layered lining epithelium and inner cuticle indicated by triple black arrows (H and E, ×400). (d) Uniform population of cells with round regular nuclei arranged in sheets (H and E, ×100)

**Figure 2:** (a) Predominance of lipomatous stroma in the tumor (H and E, ×40). (b) Spindle and plasmacytoid myoepithelial cells in the stroma (H and E, ×400). (c) Focal follicular differentiation indicated by black arrow (H and E, ×400). (d) Focal sebaceous differentiation indicated by triple red arrow (H and E, ×400)
than 20% of the total stromal component, is rare and has been described in 1% of tumors in Kazakov’s et al. study\(^1\) and 14% of tumors in Lin and Liu report.\(^{11}\) In the present case also, the lipomatous stromal change was extensive, comprising more than 50%.

The differential diagnosis to be considered for this tumor are basal cell carcinoma (BCC) and lipoadenoma. The location of the tumor is a typical site for BCC. The basaloïd cell population, peripheral palisading, and myxoid stromal change are all histological features of BCC also. However, the absence of epidermal connection, retraction artifact and mitosis was against a diagnosis of BCC. Duct formation is not usually seen in BCC. Moreover, CD10 and Bcl 2 immunostaining pattern ruled out the possibility of BCC in which epithelial cells show diffuse positivity for both Bcl 2 and CD10. In lipoadenoma, the tumor shows non proliferating normal sweat glands admixed with adipose tissue. However, in our case, there was epithelial proliferation with apocrine and folliculo-sebaceous differentiation.

**CONCLUSION**

Lipomatous mixed tumor of the skin with sweat duct epithelial proliferation and predominance of stromal fat is described in a 54-year-old female patient. Awareness of the histology of this lesion is essential to avoid misdiagnosis. Malignant potential is very low, but incomplete excision may lead to recurrence of the lesion.

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