Case Report

Dumb bell shaped conchal dermoid: Unique presentation

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Abstract Dermoid are common skin tumours. They are found commonly in head and neck areas. Dermoid cyst in region of auricle is extremely rare, we report a rare case of dumbbell shaped dermoid cyst located at the concha of auricle in a 2 year old female child. The child had presented with a mass both on external and internal aspect of concha which later turned out to be a dermoid.

Keywords: Conchal, dermoid, dumb bell

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INTRODUCTION

Dermoid cyst is a common lesion presenting to surgical outdoor clinics. This is a congenital lesion arising from ectoderm. It usually presents as a slow growing cystic subcutaneous lesion, noticed by parents either at birth or later. It is covered by dermis that contains multiple sebaceous glands and almost all skin adenexa. It frequently consists of skin, hair follicles sweat glands etc. We report a dermoid cyst which is rare in its presentation, location and shape. To the best of our knowledge a dumb bell shaped auricular dermoid has not been reported before.

CASE REPORT

A 2-year-old female child presented to Paediatric surgery OPD, with history of swelling in the region of concha of right ear. This lesion was noticed by the parents approximately 1 years back. There was no history of pain or infection. No history of discharge from ear was elicited. Hearing of the patient was normal. There was no history of trauma or ear prick. This lesion was present both on internal and external aspect of the ear [Figure 1]. It was approximately 1 × 0.5 × 0.5 cm in dimension. Overlying skin was normal. Whether the intervening cartilage was involved or not was not clear on examination. Patient was posted for excision of cyst under general anaesthesia with plans to excise the lesion. No further radiological investigations were done.

Intra-operatively the cyst was approached from both external and internal side by two separate incisions, on dissecting it was found that both the cysts were abutting the cartilage and involving it [Figure 2]. It was not possible to shave off the cyst on either side. The cartilage was thus cored out and the cyst on either side was removed intact, with its dumbbell shape [Figure 3]. Histopathological examination was consistent with a dermoid cyst. Sections showed stratified Squamous epithelium lining with part of cartilage and keratin flakes, along with mature skin adnexa; hair follicle [Figure 4] and sebaceous gland [Figure 5]. Cosmetic appearance was found to be good on follow-up. No recurrence has been reported after 2 year follow-up.

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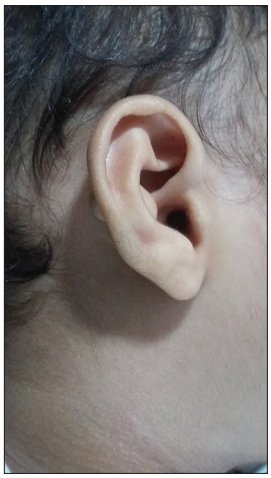

Figure 1: Dermoid on external and internal surface of right concha

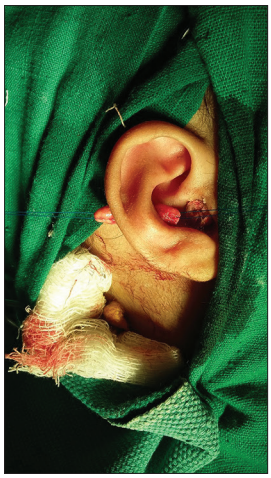

Figure 2: Dermoid involving cartilage

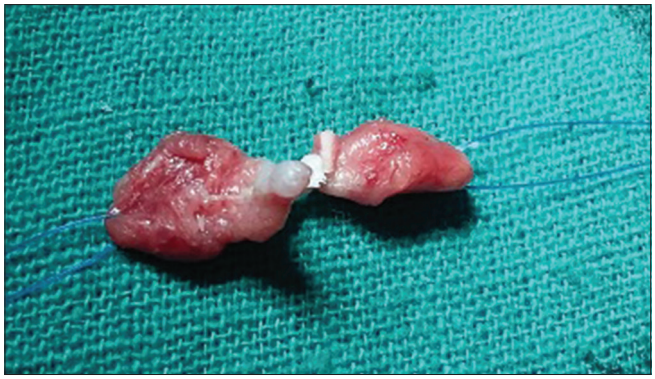

Figure 3: Dumb bell shaped dermoid

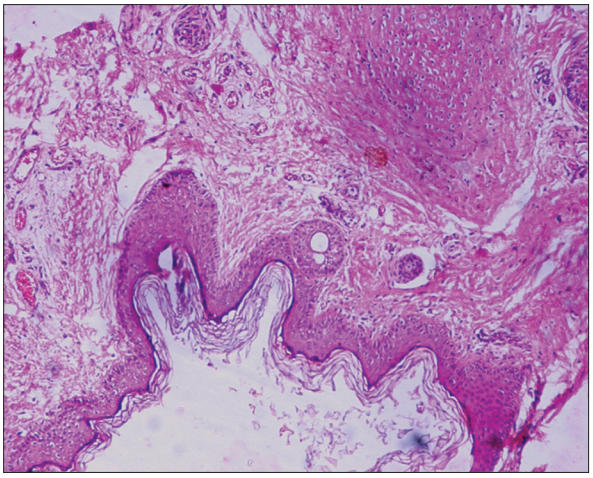

Figure 4: Dermoid cyst, (H and E, ×100), Section shows lined by stratified Squamous epithelium along with mature skin adnexa (hair follicle) with part of cartilage and keratin flakes

DISCUSSION

Auricular dermoid are rare. Pollard *et al.*[1] have reported 231 cases of paediatric age group dermoids. Approximately 37% of these were located in orbital and peri-orbital area. According to this study the most frequent site for dermoid cyst occurrence was left eyebrow and auricle a very rare site, with a reported prevalence of 9.9%; though the exact location on auricle was not mentioned by them. Mcavoy and Zuckerbraun[2] reported a rate of 3% and Taylor *et al.*[3] a rate of 5.5% for auricular dermoid. New and Erich[4] classified dermoid cysts of the head and neck into four types: (1) cysts in the eyes and orbits, (2) those in the nose area, (3) those in the floor of the mouth, and sub mental and sub maxillary regions, and (4) a miscellaneous group. However, they found no such occurrence in the auricular area in a review of 1495 cases which indicates its rarity. Embryological dermoid cysts are assumed to occur when epithelial cells are isolated at the blockage of the pharyngeal arch of viviparous (congenital) or implantation of epidermis into dermis due to penetrating injury (acquired). Entrapment of ectodermal tissue between the midline fusion of first and second branchial arches results in dermoid in head and neck region. The auricle is formed by a series of hillocks which appear on 1st and 2nd pharyngeal arches surrounding the first ectodermal cleft, at six weeks of viviparous. These hillocks will be grown to form ears at seven weeks of viviparous. This explains the origin of dermoid in this location.[5,6]

Kim *et al.*[7] in a study done by them have given the differential diagnosis of the cystic lesions on the ear which includes lipoma, hemangioma, branchial cyst etc. with a dermoid cyst. The commonest pathology reported by them was epidermoid cyst. The most common sites on auricle in decreasing order of frequency was ear lobule, followed by the tragus, crus of the helix, triangular fossa, concha-crus of the antihelix and antitragus-scapha respectively. A similar classification of benign ear masses was given by Jung *et al.*[8] Yesun Cho and Lee in their study found epidermoid cyst occurring more frequently than dermoid cyst in the region of auricle. No site preference was noted by them.[6] Our

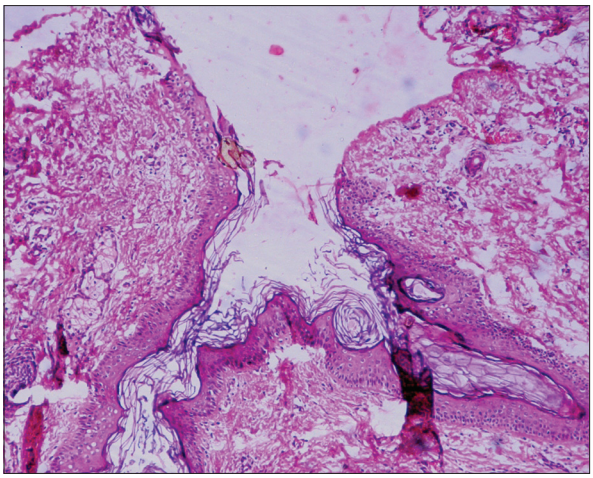

Figure 5: Dermoid cyst, (H and E, ×100), Section shows lined by stratified Squamous epithelium along with mature skin adnexa (sebaceous gland) with keratin flakes

case had a dermoid located at the right concha, a very rare location. Ear dermoid are scantly reported in world literature, irrespective of its exact location on the ear.[9-11] Dermoid have been reported at rare site in ear.[12]

Jung *et al.* reported six dermoid and epidermoid cysts in the region of the ear, in five patients (one patient had two dermoid). Four cases (in 3 patients) were believed to be congenital due to no history of trauma or surgery and two were acquired. Our case with no relevant history to support that it was acquired; appeared to be congenital in origin. Histologically it is difficult to prove the congenital or acquired origin of the cyst.[13]

Dermoid cyst is usually oval to round, though rare shapes have been reported.[14] This dermoid had an unusual dumbbell shape.

Histologically three different varieties of dermoid are known; dermoid cyst, epidermoid cyst and teratoma. Both epidermoid and dermoid cyst have keratinized and stratified squamous epithelium and eosinophilic, laminated keratin material within the thin wall. However, sebaceous glands, sweat glands and hair follicles are present only in dermoid but not in epidermoid. Epidermoid cyst consists of keratinous cyst covered by stratified squamous epithelium without adnexal structures but dermoid cyst contains keratin, sebaceous glands, hair follicles, and adnexal structures within the wall of stratified squamous epithelium. The other type is teratoma, which may include tissues of ectodermal, endodermal and mesodermal origin (all three germ cell layers). These might occasionally show malignant transformation, in which a somatic teratomatous component becomes morphologically malignant. Infants and children in these cases will usually develop an endodermal sinus tumour while adults usually develop a squamous cell carcinoma. No evidence of malignancy was found in our case. The microscopic differentials of dermoid cyst include; epidermoid cyst, cystic teratoma, lipoma, haemangioma, branchial cyst, trichilemmal cyst, keloids etc.[5,7]

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the legal guardian has given his consent for images and other clinical information to be reported in the journal. The guardian understands that names and initials will not be published and due efforts will be made to conceal patient identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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