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Case Series

A case series of epidermoid cysts of external ear in paediatric age group at our tertiary institution

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ABSTRACT

Epidermoid cyst is a benign, small, subcutaneous, extremely rare, developmental cyst of head and neck region. Case series analysis with duration of one year from June 2021 till June 2022 with study population comprised of five-patients in the paediatric age group that is age ≤12 years with epidermoid cyst over the external ear. All of our cases were benign and asymptomatic in nature and without any recurrence in follow up while the case one and five were having large size with the gross deformity of external ear which is uncommon. The histopathological examination in all cases shown fibro-collagenous cyst wall lined by keratinizing stratified squamous epithelium with a prominent granular cell layer with abundant keratin flakes. All cases shown successful surgical outcome which was confirmed by lack of postsurgical alterations and no recurrence of the lesion during follow up of next 6 months.

Keywords: Keratin flakes, Squamous, Stratified, Auricle, Helix

INTRODUCTION

Epidermoid cyst is a developmental cyst of Head and neck region, having synonym terms such as epidermal inclusion cyst, epidermal cyst, keratin cyst, milia.[1] Epidermoid cyst is a general term irrespective of the source of the epithelium. Implantation of epidermal elements followed by its cystic transformation leads to formation of Epidermal inclusion cyst and are an extremely rare clinical entity in the head and neck region. Miniature epidermoid cysts are also known as Milia.[2] Epidermoid cysts are the nodular, fluctuant subcutaneous lesions that may or may not be associated with inflammation clinically. They have slow progression and remain asymptomatic unless secondarily infected. The occurrence of secondary malignancies is rare such as basal cell carcinoma, Bowen disease, squamous cell carcinoma, and even mycosis fungoides. About 80% of skins follicular cysts are epidermoid cysts, which are most prevalent on the head, neck and back, which are also acne -prone. The terms epidermoid cyst and sebaceous cyst should not be used interchangeably because epidermoid cysts and pilar cysts are produced from the hair follicle rather than the sebaceous gland.

Epidermoid cyst can occur at any age group but most commonly in 3rd and 4th decade of life, unless they are associated with Gardner's syndrome, basal cell nevus syndrome, and panchyonchia congenita. It has got a slight male predilection. Histologically, cystic lining is most commonly comprised of stratified squamous epithelium resembling epidermis and occasionally of pseudostratified ciliated columnar epithelium, the lumen is filled with degenerating orthokeratin.[3] Epidermal inclusion cysts have ectodermal origin and location within subcutaneous tissue , associated with penetrating trauma or surgery.[4] The lateral aspect of the eyebrows is where head and neck lesions most frequently occur ,while post auricular regions are far less common. The floor of the mouth is where oral lesions most frequently occur,

however they can also affect the tongue, lips, or the inside of the bone. Epidermoid cysts are benign cysts that are usually asymptomatic and occasionally have a tendency to develop into malignancies. They have slow progression and remain asymptomatic unless secondarily infected.[5-9] Treatment of epidermoid cyst includes conservative surgical excision and recurrence is rare.[1-5]

Hospital based study conducted in the department of ENT at our tertiary institution in which we have reported a series of five cases of epidermoid cyst of external ear in pediatric age group in which we have narrated it's clinicopathological features and our experience of the surgical management and follow up in such patients.

Table 1: Summary of clinicopathological features of all cases of epidermoid cyst of external ear in paediatric age group.

Case number	Case 1	Case 2	Case 3	Case 4	Case 5
Age (in years)	6	10	11	8	12
Sex	Boy	Boy	Boy	Girl	Boy
Swelling since	3 years	4 years	2 years	3 years	1 year
Side	Right	Right	Left	Right	Left
Location of swelling	Posterior aspect of right auricle	Posterior aspect of right auricle	Root of the left helix	Posterior aspect of right auricle	Left auricular cavum concha
Family history	Nil	Nil	Nil	Nil	Nil
H/o trauma or surgery	Nil	Nil	Nil	Nil	Nil
Ear discharge	Nil	Nil	Nil	Nil	Nil
Hearing evaluation	NAD	NAD	NAD	NAD	NAD
Associated history of fever, loss of appetite	Nil	Nil	Nil	Nil	Nil
Discharging sinus	Nil	Nil	Nil	Nil	Nil
Pointing abscess	Nil	Nil	Nil	Nil	Nil
Bruit/pulsations	Nil	Nil	Nil	Nil	Nil
Symptoms	Gross deformity of the external ear	Nil	Nil	Gross deformity of external ear	Pain and redness
Characteristics of the swelling	Globular, soft, cystic, non-tender with reduced mobility, well defined margins, skin overlying normal	Globular, soft to firm, cystic, non-tender with reduced mobility, well defined margins, skin overlying normal	Ovoid, firm, non-tender with reduced mobility, well defined margins, skin overlying normal	Globular, soft, cystic, non-tender with reduced mobility, well defined margins, skin overlying normal	Ovoid, soft to firm, cystic, tender with reduced mobility, well defined margins, skin overlying red colour
FNAC	Yellowish thick material with conclusive cytology	Yellowish thick material with conclusive cytology	Scanty yellowish thick material with inconclusive cytology	Yellowish thick material with conclusive cytology	Yellowish thick material with conclusive cytology
Macroscopic biopsy specimen	Approximately 5×4 cm in size, dark red colour, cystic consistency	Approximately 3×1.5 cm in size, yellowish colour, cystic consistency	Approximately 2×1.5 cm in size, dark red colour, cystic consistency	Approximately 4×3 cm in size, dark red colour, cystic consistency	Approximately 5×4 cm in size, pale colour, cystic consistency
Histopathology	Conclusive	Conclusive	Conclusive	Conclusive	Conclusive
Recurrence during follow up	Nil	Nil	Nil	Nil	Nil

Our study was duration-based case series analysis with a duration of one year from June 2021 till June 2022 with study population comprised of patients in the paediatric age group that is age ≤12 years with epidermoid cyst over the external ear, who have attended ENT department of our tertiary institution. Total of such 5 patients who have attended our institute during one year duration were included in our study. All patients undergone a detailed history for age, sex, clinical features, previous surgery, any trauma, family history, clinical examination and

hearing evaluation. A provisional diagnosis of epidermoid cyst, dermoid cyst, or sebaceous cyst was made. Fine needle aspiration cytology was done to reveal the presence of yellowish thick material, which was sent for cytological examination and those patients were administered an informed consent and written consent was obtained from guardian of the patient. A case record (Proforma) form was filled by the patient. The treatment consisted of total surgical removal of the lesion under general anaesthesia. Surgical technique involves local infiltration with 2% lignocaine with adrenaline followed by elliptical skin incision and blunt dissection to separate cyst wall from all around using the forceps and removal of cyst along with its wall (Figure 2, 5, 7). Thorough normal saline and betadine wash given. The incised part was sutured with 3-0 ethilon material after achieving haemostasis. Histopathological examination was done to confirm the diagnosis as epidermoid cyst and benign nature of the swelling. The patients were discharged on second postoperative day. The patients were followed up during the next 6 months for any ecurrence of the lesion. Clinicopathological features of all these cases were summarized in table (Table 1).

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The average age of the patients was 9.4 years with a range of 6-12 years, with a male to female ratio of 4: 1. Swelling was observed in three patients in the right ear and in two patients in the left ear with a ratio of 3:2. The localization of swelling was over the back of the right ear in three cases out of five (60%) and in the remaining two cases over the root of the left ear and cavum Concha of the left ear respectively (Figure 1, 4, 6). All five of our cases had no history of trauma or surgery, fever or decreased appetite, ear discharge, hearing difficulty, family history of such lesions, sinus drainage, demonstrable abscess, bruising, or pulsations. In all our cases, the swelling was benign and asymptomatic in nature and did not recur during follow-up, while in one case there was a large and external ear deformity, which is rare. The swelling was cystic, decreased in mobility, and had well-defined margins in all our cases. The swellings were spherical in shape in 3 of 5 cases, and ovoid in shape in the remaining 2 cases, varying from soft, squishy to firm and firm.

Most of the cases including three out of five cases in our study were non tender with overlying normal skin, except for one case in which we found redness and tenderness due to secondary infection, which was treated with a weekly course of oral antibiotics before surgery. Fine-needle aspiration cytology showed the presence of yellowish thick material, and cytology showed squamous cells and numerous keratin flakes in 4 of 5 cases (80%), while one case had yellowish thick material with indistinct cytology.

Figure 1: Clinical photograph of a child showing globular swelling over posterior aspect of right auricle.

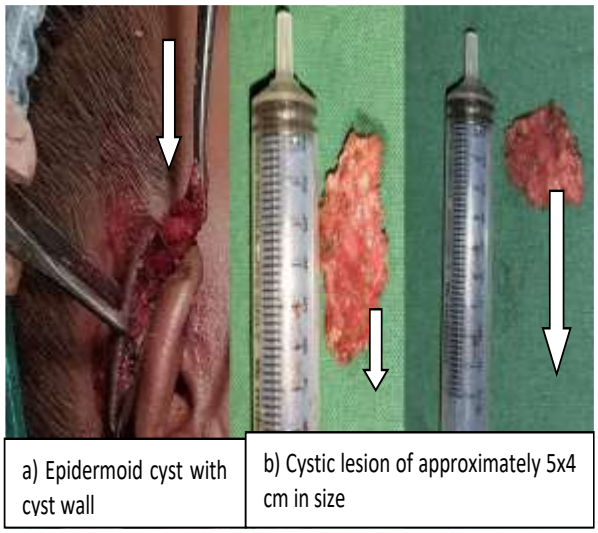

Figure 2 (A and B): Intraop photograph showing total removal epidermoid cyst along with cyst wall. Postoperative biopsy specimen photograph showing cystic lesion of approximately 5×4 cm in size.

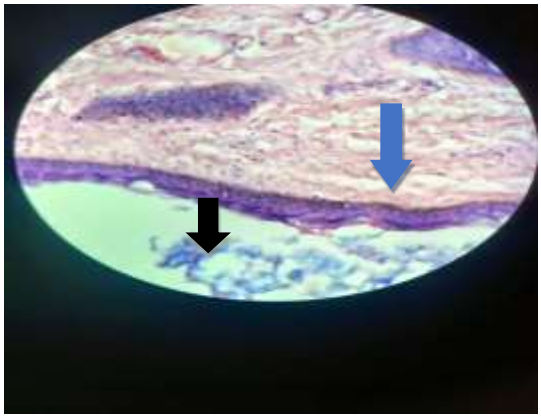

Figure 3: Photomicrograph showing cystic cavity lined by stratified squamous epithelium (blue arrow) with presence of lots of keratin flecks (black arrow) supported by connective tissue stroma (H and E).

Figure 4: Clinical photograph of a child showing globular swelling over posterior aspect of right auricle.

Figure 5: Intraoperative photograph showing total removal epidermoid cyst along with cyst wall.

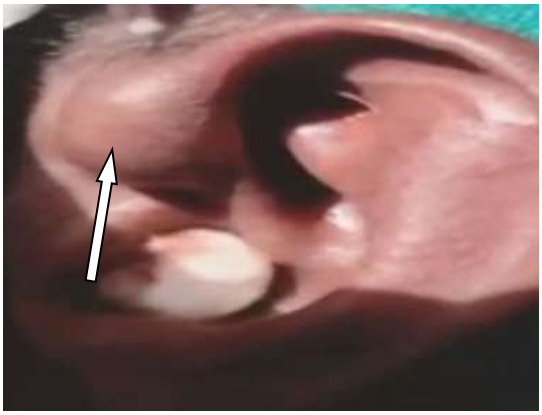

Figure 6: Clinical photograph of a child showing swelling over the root of left helix.

In all cases, macroscopic biopsy of the lesions consisted of soft, round tissue, dark red to yellowish in color and cystic consistency, measuring approximately 5×4 cm (Figure 2 B), 3×1.5 cm, 2×1.5 cm, 4×3 cm and 5×4 cm in case 1, case 2, case 3, case 4, case 5 respectively. Histopathological examination confirmed the diagnosis that all our cases showed an epidermoid cyst showing fibrocollagenous cyst wall covered by keratinizing stratified squamous epithelium and prominent granular cell layer, abundant keratin flakes on the luminal side of the cyst, hich means that it was decisive in all our cases. In all cases, we performed surgical removal of the lesion and its success was confirmed by the absence of postoperative changes and recurrence of the lesion during six-month follow-up period (Figure 3).

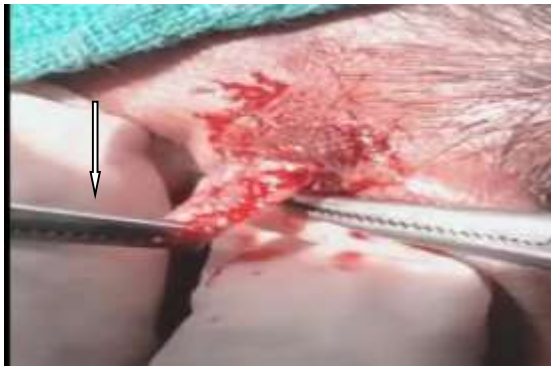

Figure 7: Intraoperative photograph showing total removal epidermoid cyst along with cyst wall.

DISCUSSION

Epidermoid cyst is a benign, small, subcutaneous, extremely rare, developmental cyst of head and neck region, having synonym terms such as epidermal inclusion cyst, epidermal cyst, keratin cyst, milia. Our study was Duration based case series analysis with a duration of one year from June 2021 till June 2022 with study population comprised of patients in the paediatric age group with age ≤12 years having epidermoid cyst over the external ear, who have attended ENT department of our tertiary institution. The epidermoid cysts occur mostly in 3rd and 4th decades of life with slight male predilection.[1-3]

The mean age of the patients was 9.4 years with a range of 6-12 years, and the male to female ratio in our case series was 4:1, which is rare. Epidermal inclusion cysts are of ectodermal origin and are located in the subcutaneous tissue, associated with penetrating trauma or surgery.[4] Epidermoid cysts can appear anywhere on the body. The most common lesions are the face, scalp, neck and body, and the rare external ear has been described in 3 cases in the literature and 5 cases in the Japanese literature. Lesions of the head and neck are most common in the lateral part of the eyebrows, while the areas behind the ears are much less common. Oral lesions most often occur in the floor of the mouth, but they can also affect the tongue, lips or the inside of the bone. Epidermoid cysts are benign cysts that are usually asymptomatic and sometimes have a tendency to develop into malignant tumours. They develop slowly and remain asymptomatic unless they are secondarily infected.[5-9] Epidermoid cysts of post auricular region should be differentiated from lipoma and haemangioma based on

their peculiar features such as Lipomas having fatty tissue composition with benign nature and haemangiomas having presentation at birth with spontaneous development having vascular endothelial composition with benign nature.[10,11] In our case series, location of the swelling was over posterior aspect of right auricle in three out of five cases (60%) and remaining two cases was over root of the left helix and left auricular cavum concha respectively which is rare.

All of our cases were benign and asymptomatic in nature and without any recurrence in follow up duration while the case one and five was having large size with the gross deformity of the external ear which is also rare. Apart from the malignant transformation, aesthetics is also one of the prime concern due to its size and location especially in the cranio-facial region.[1,6,12] Histologically, The Epidermoid cysts cystic lining is most commonly comprised of stratified squamous epithelium resembling epidermis and occasionally of pseudostratified ciliated columnar epithelium, the lumen is filled with degenerating orthokeratin.[3] Histology in all of our cases shown fibrocollagenous cyst wall lined by keratinizing stratified squamous epithelium with a prominent granular cell layer, luminal side of the cyst shows abundant keratin flakes having confirmed the diagnosis as epidermoid cyst.

Treatment of epidermoid cyst includes conservative surgical excision, and recurrence is rare.[1-5] All of our cases were benign and asymptomatic in nature and without any recurrence in follow up duration while the case one was having large size with the gross deformity of the external ear which is rare. All of our cases, we have done surgical removal of the lesion and its success was confirmed by lack of postsurgical alterations and no recurrence of the lesion during follow up duration of next 6 months.

CONCLUSION

The epidermoid cysts occurs mostly in 3rd and 4th decades of life with slight male predilection but in this case series all cases were in the paediatric age group from 6 to 12 years with the male to female ratio as 4:1, which is uncommon. Epidermoid cysts are benign cysts which are usually asymptomatic and occasionally have a tendency to develop into malignancies but all of our cases were benign and asymptomatic in nature and without any recurrence in follow up duration while the case one and five were having large size with the gross deformity of the external ear which is also rare. The histopathological examination in all cases shown fibrocollagenous cyst wall lined by keratinizing stratified squamous epithelium with a prominent granular cell layer, luminal side of the cyst shown abundant keratin flakes. All of our cases shown successful outcome of surgical removal of the lesion which was confirmed by lack of postsurgical alterations and no recurrence of the lesion during follow up duration for next 6 months.

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