# SURGICAL MANAGEMENT OF POSTAURICULAR EPIDERMAL INCLUSION CYST AFTER COCHLEAR IMPLANT SURGERY

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## ABSTRACT

Post auricular epidermal inclusion cyst after ear surgery are rare in clinical practice and such condition post cochlear implantation is not yet reported in the literature.We are reporting management of two cases of post auricular epidermal inclusion cyst occurring few years after cochlear implantation with a functional implant insitu.

### OBJECTIVE

To highlight the occurrence of post operative epidermal inclusion cyst in patients with cochlear implantation.

### **MATERIAL AND METHODS**

Two cases with post aural cystic lesion post cochlear implantation surgery reported between 2017 to 2019 at a referral centre are highlighted. They were aged 8 and 13 years old and had cochlear implant surgery done 5 and 8 years prior to onset of swelling. Both cases were managed surgically.

# RESULTS

Post cochlear implant swelling at surgical site is always a matter of concern. Both patients underwent FNAC and CT which were suggestive of epidermal inclusion cyst. Total excision was done with no evidence of recurrence.

### CONCLUSION

Post auricular EIC are very rare after cochlear

implant and should be kept in differential diagnosis of post auricular swelling years after surgery and can be differentiated from seroma by location and FNAC. EIC can be safely excised after cochlear implant surgery without compromising the implant.

### **KEYWORDS**

Cochlear Implant, post uricular cyst, epidermal inclusion cyst, veria, Cochlear implant complication.

### INTRODUCTION

Epidermal inclusion cysts(EIC) are benign cystic lesions of skin and is a type of dermoid[1]. It can be congenital or acquired. Cyst develops by implantation of epidermis below dermis as a result of trauma, surgery or inflamed hairfollicles. [13]. EIC in head and neck region is uncommon and even rarer in postauricular region with only few case reports [47]. In this study we have reported two cases of postauricular EIC after a cochlear implant surgery. The possible aetiology in our series is surgical implantation of epidermis into the dermis during surgery or due to frictional trauma after long term use of the behind-the-ear speech processor. After extensive search of literature, we did not find any case of epidermal inclusion cyst developing after cochlear implant surgery. These cases highlight that EIC should be a differential diagnosis in Post auricular lesions following cochlear implantation in the vicinity of the implant.

### **CASE REPORTS**

There were two cases of postaural EIC who presented to Neuro-otology out-patient unit in a tertiary care centre. They were 8 and 13 year old post unilateral cochlear implant patients who presented with postaural swelling after 5 and 8 years of cochlear implantation respectively. Both patients were operated by Veria technique via endaural approach. On examination the swelling was located post aurally - inferior to the incision site, cystic in consistency and with no signs of inflammation (Fig. Ia). Cytology was suggestive of epidermal inclusion cyst. Ultrasonography determined a subcutaneous, cystic swelling in both the cases however in latter case distinct findings were not obtained, thus a CT of head and neck was done which showed a non-enhancing cystic lesion near the tip of mastoid process and upper part of sternocleidomastoid muscle (Fig. lb).

**Figure 1:** Ia- Pre-operative image showing the post auricular cyst (\*), below the incision line. Ib-Preoperative CT image showing non enhancing cystic lesion on right (\*)



X-ray head was done to determine the position of electrode into the cochlea.Surgery was done under general anaesthesia, an elliptical incision was given over the swelling and a pale coloured cyst was seen in subcutaneous plane (Fig.lla).It was then dissected out from surrounding tissue by sharp dissection as it was adherent to the underlying periosteum. Bipolar cautery was used minimally only when indispensable. In latter case cyst was adherent to the sternocleidomastoid muscle thus portion of the muscle was dissected out with the cyst wall to ensure complete removal (Fig IIb).Cochlear implant electrode was not seen in operative field and the entire assembly was covered with periosteum.Histopathological examination (HPE)confirmed epidermal inclusion cyst.

**Figure 2:** Ila- Intraoperative image showing subcutaneous location of cyst. Ilb- EIC specimen after complete excision.



### DISCUSSION

Any swelling in postauricular region post cochlear implantation is a source of anxiety for both the surgeon and the patient. There are two cases presenting with postauricular swelling few centimetres inferior to skin incision few years after cochlear implant surgery. The most important differential diagnosis of a postaural swelling is seroma due to foreign body reaction and arises at any time up to 10 years following surgery[8]. The other differentials for a post auricular cystic swelling are dermoid, sebaceous cyst, lipoma and haemangioma[4]. Management includes fine needle aspiration, imaging followed by surgical excision biopsy.

There are no cases of post cochlear implant epidermal inclusion cyst reported in literature. EIC are common skin lesions, but uncommon in head and neck region (7%)and are mainly found in face, neck and near orbit [6][9]. It is a type of dermoid cyst and is classified into three histological types-Epidermal inclusion cyst, dermoid cyst and teratoid cyst[4]. Congenital dermoid arises during 3rd to 5th weeks of gestation. The cyst may also arise at any age due to traumatic implantation of skin elements into the underlying tissue[10]. The possible etiology of these cyst in our cases is implantation of epidermal structures during surgery by high speed drill trauma. Both cysts were away from the incision line of surgery and on the area where the BTE speech processor rest, so another possibility is repeated mild frictional trauma of speech processor over the skin over post auricular area. Surgical excision is safe without compromising the safety of cochlear implants as these lesions are in subcutaneous plane and the implant assembly rarely come in contact as implant is covered by periosteum. Extra care should be taken while dissecting the medial surface of these lesions as the electrodes may be in close contact in that area. During surgery effort should be taken to remove the cyst in toto to prevent recurrence. Bipolar cautery can be used for hemostasis. Post cochlear implantation seroma formation is a fairly common condition and results due to foreign body reaction. However these lesion are seencloser to the silicon coated device.

# CONCLUSION

Postauricular EIC are very rare after cochlear implant and should be kept in differential diagnosis of post auricular swelling years after surgery and can be differentiated from seroma by location and FNAC.EIC can be safely excised after cochlear implant surgery without compromising the implant.

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