A pinna helix sinus: a developmental anomaly

Abstract
A preauricular sinus is a common congenital anomaly commonly found anterior to the ascending limb of the helix, resulting from incomplete fusion of the first and second hillocks of His. It presents as a discharging or infected lesion that is managed by surgical excision. We present a previously unreported case of an auricular sinus, located on the margin of the helix adjacent to the antitragus, resulting from incomplete fusion of the fifth and sixth hillocks of His. Whilst different surgical techniques may be used when excising such lesions, the age of the patient, the position and direction of the sinus tract and the potential deformity that can arise in the developing pinna must be taken into consideration.

Keywords
Pinna, sinus, preauricular

Introduction
The pinna is derived from six mesenchymal proliferations known as the six hillocks of His. These hillocks fuse and rotate during embryological development to form an elaborate but relatively uniform structure. The commonest pinna abnormality referred to the Ear, Nose and Throat department is that of a protruding ear (bat ear) that arises due to failure of formation of the antihelical fold. Other common anomalies include preauricular sinuses and accessory nodules.

A preauricular sinus commonly occurs near the anterior margin of the ascending limb of the helix. It often presents as a discharging sinus or infected lesion anterior to the root of the helix.

Case report
A six-year-old Caucasian girl was referred to our unit with a discharging lesion on the margin of her right pinna. This had been present since birth, and her history suggested that this had intermittently become infected.

A discharging sinus was evident along the helical border of her right pinna at the level of the antitragus. Mucoid discharge was expressed on gentle pressure from the lumen of the sinus. Full otological examination, including examination of the contralateral pinna, was entirely unremarkable. A clinical diagnosis of a sinus arising from the skin surface was made. In view of the chronic discharge experienced and the possibility of infection and subsequent deformity, surgical excision was recommended.

Under general anaesthetic, a lacrimal probe was inserted into the lumen of the sinus. An elliptical marginal skin incision was made and the sinus tract completely excised with a cuff of cartilage from the lateral border of the helix. The defect was closed with vicryl 4-0 sutures and the patient made a full recovery.

Histology confirmed the lesion to be a squamous epithelial lined tract consistent with an auricular sinus.

Discussion
We describe a previously unreported form of auricular sinus, found on the helix of the pinna due to incomplete fusion of the fifth and sixth hillocks of His, and outline its subsequent surgical management.
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We surmise this defect to have arisen from incomplete fusion of the fifth and sixth hillocks resulting in a blind ending squamous epithelial lined tract.

Surgical excision is the definitive management of an auricular sinus. Some advocate excision of asymptomatic preauricular sinuses, as total extirpation of an infected sinus tract is harder to achieve. Two techniques are commonly described: marginal excision with probe delineation; and wide local excision. The average sinocartilaginous distance is small, making dissection without removing any cartilage difficult and the resulting recurrence high. Wide local excision has lower reported rates of recurrence, however this removes more tissue and thus risks greater significant deformity.

Excision of sinus tracts posterior to the imaginary line extending from the tragus to the posterior border of the ascending limb of the helix have been previously described. Successful excision of these were achieved with a dual approach using preauricular and retroauricular incisions.

In this case because of the location of the sinus tract, and considering the age of the patient, the sinus tract was successfully removed by marginal excision. This was preferred to wide local excision as removing a large wedge portion of helical cartilage would have created significant deformity and cosmetic asymmetry.

There are a variety of different surgical techniques adopted to excise pinna sinuses. In deciding which, one must take into account the position and direction of the sinus tract, proximity of cartilage, and the potential cosmetic deformity that can arise in the developing pinna. From this case, one should recognise that failure of fusion may potentially occur between any of the hillocks.

Conflict of Interest
All authors have no conflict of interest to declare. No extraneous funding was obtained.

References