

## Benign Tumor of the External Auditory Canal —Ceruminoma—

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Benign tumor of the external auditory canal is rare, particularly adenoma. Adenoma arising from ceruminous glands in the external auditory canal is called as ceruminoma.

In the review of literature, only nineteen cases of ceruminoma have been reported since Brock<sup>1)</sup> first described it in 1926.

In this paper an additional case of this disease will be reported.

### REPORT OF A CASE

A thirty-eight year old woman was first seen in our clinic on February 26, 1971, having a mass in the external auditory canal on the right side. The patient has noted this mass about three years prior to admission on March 1, 1971, and since that time the mass has increased in size gradually to obstructing the external auditory canal. Occasionally, this mass has collapsed spontaneously, and drainages have been present. She denied any earache.

As shown in Figure 1, an examination revealed a mass covered with skin, which was attaching to the postero-inferior wall of the cartilagenous part in the canal. The mass was somewhat elastic soft as like a polyp. The tympanic membrane was partially seen through a gap between the mass and the canal wall. So far as observed through the gap the eardrum seemed to be normal. An audiogram was nearly normal. Well development of pneumatization in the mastoid cell system without any cloudiness was detected by X-ray examination of the ear. Routine laboratory examinations showed normal results. A surgical procedure to remove the mass was attempted on March 2, 1971 ; under local anesthesia using of 0.5 % xylocain solution an endaural incision was made in the ear canal around the mass which widely attached to the postero-inferior wall of the meatus. The mass was excised from the cartilagenous wall as an enbloc with the canal skin around the mass. The bony canal and tympanic membrane were not involved. The postoperative course was uneventful ; the wound healed well within two weeks, and

no recurrence occurred following six months.

As shown in Figure 2, the mass removed from the external auditory canal was measured  $0.8 \times 0.7 \times 0.6$  cm in size, covered with skin and somewhat elastic soft.

The histopathologic examination of the mass showed a so-called ceruminous adenoma; the tumor was enclosed with fibrous capsule from the upper dermis to the lower one. The nodular tumor consisted of glands of varying size and shape (see Fig. 3).

These glands were similar to the normal ceruminous glands and ducts. Namely, the glandular epithelium was of two types. The innermost layer, composed of tall cylindrical cells with densely eosinophilic cytoplasm, showed a dome of the free edges with frequent small globules and granules. Pigments, such as is found in normal ceruminous gland, were present around the nucleus. These were minute and brown in color. The PAS and Sudan III stains were positive (see Fig. 4, 5). The second layer was composed of smaller cuboid cells with scanty cytoplasm and oval nuclei than the former (see Fig. 6). There were no signs for malignancy such as cellular pleomorphism, hyperchromatism and mitosis. The stroma was composed of dense collagen fiber in some places.

#### COMMENT

Adenoma arising from the ceruminous glands is known as ceruminoma, although Johnstone and et al<sup>2)</sup> opined that the absence of histologic differentiation in sweat gland tumors elsewhere in the body other than those of the vulva merited the discarding the term, "Ceruminoma". They<sup>2)</sup> also reinforced this opinion by an observation that the apocrine sweat glands in the external auditory canal did not secrete the wax. This opinion was supported by O'Neill and et al<sup>3)</sup>. They preferred the description "Hidradenoma of the External auditory meatus".

According to Mawson<sup>4)</sup>, it is generally accepted that meatal wax is the product of both modified sweat glands and sebaceous glands. Cerumen is definitely linked in the otological mind with the sweat glands, and it would seem useful to retain ceruminoma as the term of choice for these adenomas of the modified sweat gland in the auditory canal. Osogoe<sup>5)</sup> reported that apocrine glands of the external auditory meatus are seen mainly on the skin of the posteroinferior wall of the cartilagenous meatus. Moreover, these are rarely observed on the skin of the bony meatus, according to Eckert-Mäbius<sup>6)</sup> and some authors. Fourteen out of twenty ceruminomas reported previously, as well as our case, originated from the inferior and posterior wall of the cartilagenous meatus (see Fig. 7). The local recurrence after excision of this tumor is not uncommon. In fact, six of fifteen cases recurred after incision (see Fig. 7). The narrowness of the surgical field may be an obstacle in the complete resection of the tumor lesion. Therefore, it is necessary to

attempt total excision, including the surrounding normal meatal skin when first observed.

### SUMMARY

A case of the so-called ceruminoma in the external auditory canal was reported. Ceruminoma belongs to benign tumor histologically, but its recurrence is very common after the excision.

A complete resection of ceruminoma should be performed when it is first observed.

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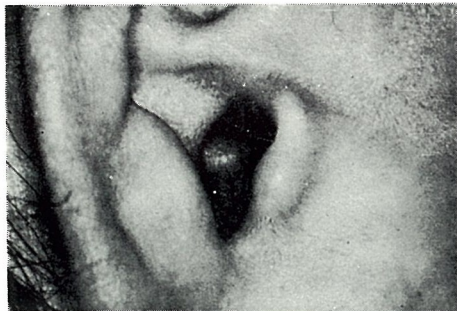


Fig. 1. A skin covered polypoid swelling with a wide attachment to the postero-inferior wall of the right ext. aud. canal.

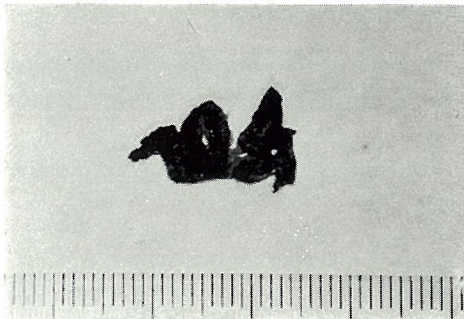


Fig. 2. Removed tumor.

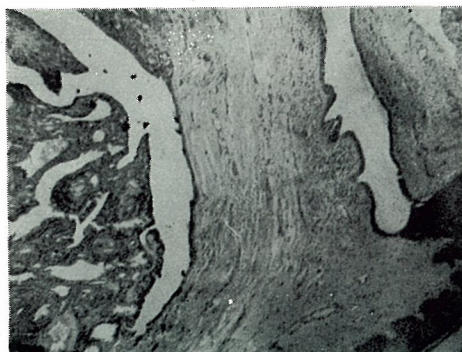


Fig. 3. H-E stains. ( $\times 40$ )

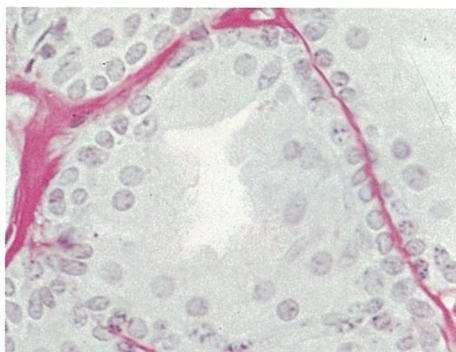


Fig. 4. PAS stains. ( $\times 400$ )

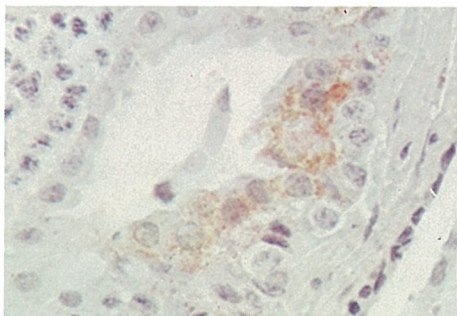


Fig. 5. Sudan III stains. ( $\times 400$ )

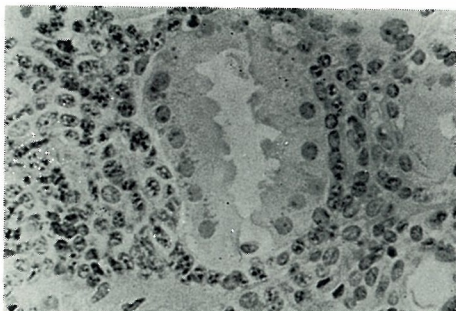


Fig. 6. H-E stains. ( $\times 400$ )

PUBLISHED CASES OF 'CERUMINOMA' (1925—1971) (Fig. 7)

AUTHOR	AGE	SEX	SPRINGING AREA	DURATION	SIZE	OPERATION	HISTOPATHOLOGY	REMARKS	RECUR- RENCE
Brock (1925-1926)	53y. o.	F.	Antero-sup. cartilag. wall of the outer meatus.	8 years	4 gr.	Removal	It consists mainly of adenomatous glands. The epithelial cells are arranged mainly in two rows. The peripheral layer of these cells was flat and rectangular in shape whereas the inner layer was spherial in shape. (Ceruminous adenoma)	Otorrhea Pain Deafness Noises	One (for 12 years)
Ruttin (1927)	14 y.o.	M	Floor of the outer meatus.	6 years	.....	Removal by retroauricular approach.	It consists of dilated tubular ceruminous glands.	Otorrhea	One (6 years)
Hujimoto (1929)	40 y.o.	F.	Floor of the outer end of the ext. aud. meatus.	14 years	Small finger	Removal by endauricular approach.	It consists of dilated ceruminous glands. (Ceruminous adenoma)	Hearing loss Ear obstructive sensation	Twice (14 years)
Sprenger and Priezel (1939)	50 y.o.	M.	Anterosuperior wall of the ext. aud. canal.	1 year	.....	Removal by retroauricular approach.	It consists of tubular connective tissue and solid rodlike formations. The epithelial is composed of one to two layers of cells. (Adenoma of ceruminous glands)	Hearing loss Slight otalgia	None (period?)
Adler and Sommer (1944)	51 y.o.	M.	Posterior wall of the ext. aud. canal.	12 years	7×6×4 mm	Removal by postauricular approach.	It consists of dilated glands with their double rows of epithelial cells		
Leitner (1952)	65 y.o.	F.	Floor of the ext. aud. canal.	Three and half a year.	Pea size	Removal by endauricular approach.	Adenoma of the ceruminous glands.	Otalgia	No-follow up

AUTHOR	AGE	SEX	SPRINGING AREA	DURATION	SIZE	OPERATION	HISTOPATHOLOGY	REMARKS	RECUR- RENCE
Johnston, Lennox and Watson (1957) Case I	39 y.o.	M.	The lower wall of the ext. aud. canal.	6 months.	.....	Removal	Hidradenoma of the ext. aud. canal.	Otorrhea	None (untraced)
	64 y.o.	F.	The postero-superior wall of the ext. aud. canal.	.....	.....	Removal	Hidradenoma of the ext. aud. canal.	Otorrhea Some deafness	One (4 years and 6 months)
	42 y.o.	M.	The cartilagenous ext. aud. canal.	9 years	.....	Removal	Cylindromatous hidradenoma.	Otalgia Obstructive sensation of the meatus	Multiple
	53 y.o.	M.	The floor of the ext. aud. canal.	1 year	.....	Wider incision of the posterior and inferior meatal walls, including parotid tissue, was carried out together with radical mastoidectomy.	Cylindromatous hidradenoma.	Blood- stained otorrhea	None (One and half a year)
Juby (1957) Case I	53 y.o.	M.	The roof and upper part of the posterior wall of the deep meatus.	Within one year.	.....	Removal by endauricular approach	It consists of dense fibrous tissue in which there are groups and branching strands of cuboidal cells. These resemble those found in tumours of the ceruminous glands.	Blocking feeling in the ear.	None (3 years)
	67 y.o.	M.	In the left ear.	.....	.....	Surgical excision	Adenoma of the ceruminous glands.	Deafness	None (4 years and 6 months)
Nandi (1961)	79 y.o.	F.	Membranous posterior meatal wall.	Several years	3.5 × 1.3 cm.	Removal by post-and endauricular approach.	Hidradenoma of the mixed salivary type.	Intermittent dizziness Headache Earache Facial palsy	

Sai (1961)	36 y.o.	F.	Anterior wall of the ext. aud. meatus.	2 years.	.....	Removal by end-auricular approach.	Ceruminoma	Hearing loss Earache	None (several years)
Peytz and Ohlsen (1961)	44 y.o.	M.	The ext. aud. canal and tympanic cavity.	10 years	.....	Endaural incision.	Ceruminous gland tumor (Ceruminoma)	Hearing loss Otorrhea Otagia	One (5 years)
Kawamoto and others (1961)	55 y.o.	M.	The posterior wall of the ext. aud. canal.	10 years	9.5 gr	Removal by end-auricular approach.	Adenoma of the ceruminous glands.	Hearing loss	No-follow up.
Ishii and others (1962)	44 y.o.	M.	The antero-superior wall of the ext. aud. canal.	3 years	2 × 1.5 × 1 cm.	Removal by post-auricular approach.	Adenoma of the apocrine glands of the ext. aud. canal.	Earache Otorrhea	No-follow up.
Arora (1964)	46 y.o.	M.	The posterior wall of the ext. aud. canal.	2 years	1.5 cm. in diameter	Removal by post-auricular approach.	Cystic and papillary adenoma of the ext. aud. canal.	.....	None (one year)
Juby (1965)	64 y.o.	F.	The upper part of the posterior wall of the ext. aud. canal. A part of it on the bony ext. aud. canal.	A few months.	1.0 × 0.7 cm.	Removal by end-aural approach.	Ceruminoma.	Deafness	None (7 months)
Tabata (1969)	35 y.o.	F.	The posterior wall of the deep ext. aud. canal.	1 year	Soybean	Removal by post-auricular approach.	Ceruminoma.	Blocking sense in the ear.	No-follow up.
This case (1971)	38 y.o.	F.	The lower part of the ext. aud. canal.	3 years	0.9 × 0.7 × 0.6 cm.	Removal by end-aural approach.	Ceruminoma	Intermittent otorrhea	None (6 months)