

Carcinoma of the Ear

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Carcinoma of the ear is rare, as shown by the studies of Lewis,¹⁾ Suko,²⁾ Schall,³⁾ Toriyama⁴⁾ and others.

In this paper, 3 cases of carcinoma, which were found in our clinic last five years, are reported.

REPORTS OF CASES

Case 1. Mr. M.M. aged 70. The patient had had bilateral intermittent ear discharge for about 35 years. Since 6 months prior to admission, he had developed purulent ear discharge combined with blood and earache on the left side, and head heavy sensation. He visited some otologist and was treated without good results and was admitted to our clinic on July 1, 1966. In addition, he has history of bronchial asthma for several years.

On admission, the chest, abdomen and extremities were normal. Body weight ; 45Kg, Pulse ; 72/min., Body temperature ; 36.5°C, Blood pressure ; 172/96 mmHg. In the local examination, there was pulsating sero-purulent discharge on the left ear canal and the eardrum could not be seen clearly because of swelling of the posterior wall of canal. No tenderness on the postauricular region was complained. Facial paralysis was visible on the left side. A total perforation of the eardrum with slight purulent discharge on the canal was visible on the right side. Sense of taste was normal. The septum nasi was deviated to the right side and enlarged bulla ethmoidalis was visible on the left middle meatus. The pharynx, Larynx and choana were normal. X-ray of the mastoid cells showed poor pneumatization on both sides. Audiogram showed hearing loss on both sides averaged 65 db. Vestibular function was normal. Peripheral blood examination was within normal limits. Examination of systematic blood chemistry showed slight depletion. Urine examination for sugar was positive 0.1 g/dl. Serologic test for syphilis was negative. E.C.G. was within normal limits.

Judging from the above mentioned symptoms, the diagnosis of chronic middle ear infection was made and the patient was performed on a radical mastoidectomy on the left side on July 5, 1966. During this procedure, the biopsy was taken from the external auditory canal and was sent to examination which was made a

diagnosis of squamous cell carcinoma by Dr. Yamashita (Fig. 1). After operation, betatron irradiation was done from July 25 to September 21, total 7700 R. After that, specimens were taken twice from the middle ear, which showed granulation tissue (by Dr. Yamashita). The patient was discharged in good condition on October 15, 1966 (107 days).

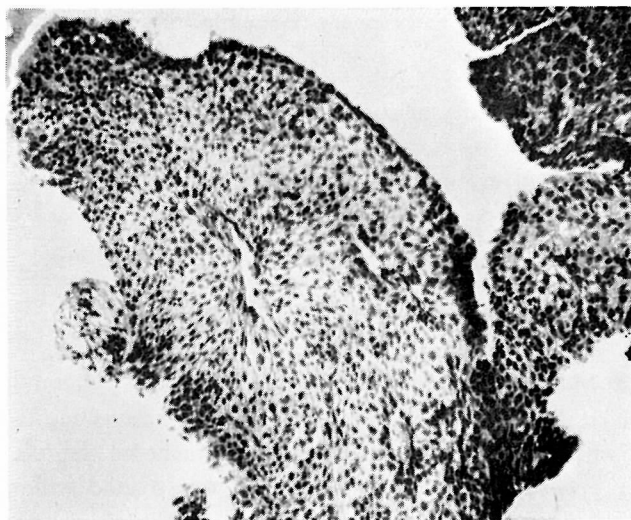


Fig. 1. Histological finding on Case 1 Squamous cell carcinoma ($\times 100$)

Case 2. Mr. D.T. aged 56. The patient had had the history of chronic middle ear infection on the left side for about 30 years. Since January of 1970, he developed ear discharge combined with blood, and was admitted to our clinic on February 27, 1970. He had had history of chronic nephritis for 5 years.

On admission, the chest, abdomen and extremities were normal. Body weight; 44Kg, Pulse; 68/min., Body temperature; 37.5°C, Blood pressure; 142/80 mmHg. On ENT examination, the left sided external auditory canal was filled with polyps with easy bleeding, and the eardrum could not be seen. Slight facial paralysis was seen on the left side. The right eardrum, nose, pharynx and larynx were normal. X-ray of the mastoid cells revealed poor pneumatization on the left side. Audiogram showed hearing loss on the left side averaged 70 db. E.C.G. was within normal limits. Test of systematic blood chemistry revealed sever depletion and spermin reaction was positive. Peripheral blood examination was within normal limits. Urine examination for protein was positive in 30 mg/dl. Serological test for syphilis was negative. Biopsy was performed from the mass of the left external auditory canal and histrological examination revealed squamous cell carcinoma (by Dr. Araki) (Fig. 2). On March 10, intra-cranial operation with radical mastoidectomy was done. There was the large bony defect on the tegmen tympani and the forward wall of the external auditory canal, because the masses extended

into the temporal lobe (Fig. 3). After operation, irradiation was performed with Dermopan at Dermatological Department from March 18 to June 22, total 15500R and with use of betatron from June 25 to July 10, total 2400 R at Radiological Department. After this procedure specimen was taken from the operation area. Histological examination revealed no malignancy, and he was discharged on July 11, 1970 (135 days).

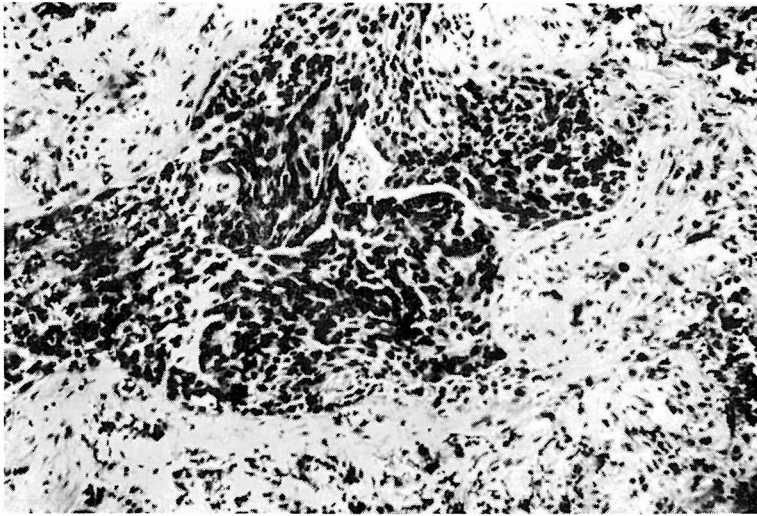


Fig. 2. Histological finding on Case 2 Squamous cell carcinoma ($\times 100$)



Fig. 3. Operation field of Case 2.....The tumor extends into the temporal lobe (Case3)

Case 3. Mr. A. S. aged 69. The patient had developed the earache on the right side on September 2, 1970. First, he was seen at Masuda Red-Cross Hospital, and was diagnosed the mass of the right external auditory canal and biopsy specimen was taken, which revealed adenoid cystic carcinoma, and he was referred to our clinic for treatment on September 28. He had history of hypertension for a long time. On admission, the chest, abdomen and extremities were normal. Body weight; 41 Kg. Pulse; 60/min., Body temperature; 36.7°C, Blood pressure; 220/108 mmHg. On local examination the mass was visible just behind the tragus (Fig. 4). It was located at the anterior and superior wall of the cartilagenous auditory canal, elastic hard in consistency and the surface was rough. The eardrum was clear. No facial paralysis was seen. The left eardrum, nose, larynx and pharynx were normal. X-ray of the ear revealed no abnormal finding. The audiogram revealed hearing loss on both sides (25-75 db) combined with presbycusis. Biopsy specimen was taken at our clinic again, and it was the same diagnosis (adenoid cystic carcinoma by Dr. Tamura) (Fig. 5). Peripheral blood examination were within normal limits. Hemorrhagic study showed normal. Examination of systematic blood chemistry revealed renal dysfunction. Urine examination for protein and sugar was negative. E. C. G. showed the left ventricular hypertrophy. serologic test for syphilis was negative. He was performed on a resection of the tumor of the external auditory canal and exposure of the mastoid cells on the right side on October 6, 1970. An incision was made around the tumor and dissected the mass. Then in order to examine the eardrum and mastoid cells the exposure on the bony external canal, the eardrum and mastoid cells was done, in which there was no tumor (Fig. 6). Since 4 days after operation, chemotherapy was performed 8 time used with Endoxan 100 mg, 5-Fu 250 mg, Mytomycin 2 mg and Toyomycin 0.5 mg at intervals of 4 days. 17 days after operation, he was given irradiation using radium needles, 800 R every 4 days total 3200 R.

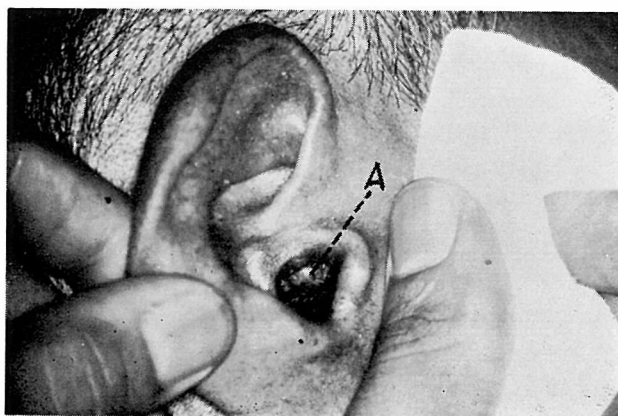


Fig. 4. In case 3, a mass^(A) was seen just behind the tragus in the external auditory canal.

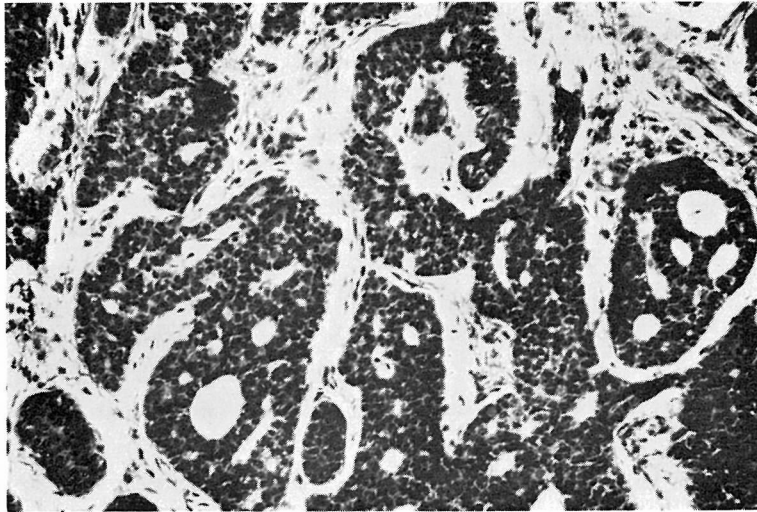


Fig. 5. Histological finding on Case 3 Adenoid cystic carcinoma ($\times 100$)

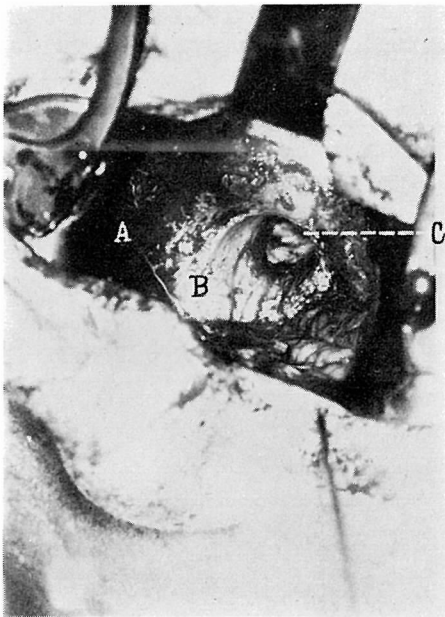


Fig. 6. Operating findings after removing the mass showed that there are no mass in the mastoid cell^(A) and bony canal^(B). The eardrum^(C) is intact.

COMMENT

Cancer of the ear is a term covering a multiplicity of lesions ranging from cancer of the skin of auricle to malignant tumor which erodes to the petrous portion to the temporal bone. Cancer of the pinna and cancer of the auditory canal are designated as "early" (below 2.5 cm) and "advanced" respectively, because of

the difference in therapy required. Cancers of the middle ear, of the mastoid and of the petrosa, at any stage, require radical surgery.¹⁾ On the other hand, Grossmass A. A. et al.⁵⁾ classified the cancer of the ear into 3 groups; (1) primary carcinoma of the external ear canal and auricle (extrinsic) (2) primary carcinoma of the middle ear and mastoid process (intrinsic) and (3) neoplasms involving the middle ear, the mastoid process, the external ear canal and auricle whose site of origin is impossible to determine at first examination.

Carcinoma of the ear is a rare condition. Lewis¹⁾ found the various type of ear cancer in 150 patients over a period of 15 years. Suko²⁾ found that in a 24-year period, only 10 patients had the ear cancer in Kumamoto University. Schall³⁾ found that in a 12 year period, at the Massachussets Eye and Ear Infirmary, only 15 patients out of 90,040 with pathological conditions of ear, had neoplasm.

The etiology of cancer of the ear is still obscure; however, certain associated and predisposing factors have been suggested as precursors to cancer. Liebeskind⁶⁾ reported in his literature as follows. These are: 1. Chronic otorrhea, either from otitis media or mastoiditis; 2. Chronic eczema and other chronic dermatoses; 3. Senile keratosis; 4. Cutaneous horns; and 5. Chronic ulceration from trauma or frostbite. Two cases of our reports had long continued otorrhea, too and the last seems to have had the mass of the external canal for a long time without noticed.

In the study of histological examination of the ear cancer, many authors¹⁾²⁾⁷⁾⁸⁾ reported that squamous cell carcinoma is the most (Table 1). Two cases of our reports are squamous cell carcinoma, too. The last case, adenoid cystic carcinoma, is a very rare condition according to the literature.

The original area of the ear cancer is shown in Table 2. In abroad, high incidence of auricular cancer is reported.¹⁾⁹⁾ Over against this, in Japan,²⁾⁷⁾⁸⁾

Table 1. Histo-pathology of ear cancer

	Suko	Ichihara	Harada	Lewis
	%	cases		
Squamous cell carcinoma	76.4	40	108	71
Carcinoma simplex	5.5	2	7	-
Adenocarcinoma	5.5	4	8	6
Basal cell carcinoma	4.7	4	10	66
Adenoid cystic carcinoma	0.8	1	-	-

(Suko, Ichihara, Harada, Lewis)

Table 2. Original area of the ear cancer

	Border	Lewis	Lederman	Suko	Ichihara	Harada
	cases					
Auricle	53	90	174	23	9	29
External auditory meatus	8	42	52	57	30	60
Middle ear	1	18	63	51	24	62

external and middle ear cancer is many reported.

The consensus of the opinion among all the authors is to treat this distressing disease with radical surgery, where feasible and irradiation. Schall³⁾ pointed out that "In the external use of irradiation the clinical fact is ignored that even with a dosage sufficient to cause necrosis of the bone it may have no effect on the tumor invading the bone. He also suggested the following procedures :

1. Wide removal of the growth by excision of the entire cutaneous canal.
2. Radical mastoidectomy for the purpose of inspection and for sufficient space for proper application of radium.
3. Irradiation must be applied at the site of the lesion.

All cases of our reports were performed irradiation after operation. Post-treatment follow-ups should be done at frequent intervals.

The prognosis in the carcinoma of the ear should be deferred at least until the mastoid process has been opened and the extent of the lesion determined. Furthermore, consideration must also be given to the grade of malignancy of the tumor and the presence of regional lymphnode involvement.⁵⁾ Schall's³⁾ series of four cases there was no recurrence in two to four years, but at the end of seven years, all were dead. According to the literature of Liebeskind,⁶⁾ in the series of 38 cases of Figi and Hempstead, 20 patients lived two years, 15 lived three years, 10 lived seven years, 8 lived eight years, 3 lived 10 years and one lived 15 years.

SUMMARY

Three cases of carcinoma of the ear, which were found in our clinic last five years, are reported.

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