

## A Case of External Ear Osteoma as a Polyp in Dog

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**Abstract :** A 2 year-old, 3.8 kg, intact female Maltese was presented with unilateral pain and reddish discharge from the left ear caused by a polyp in the horizontal ear canal. The polyp was diagnosed as osteoma histopathologically and removed through total ear canal ablation. Three months after surgery, osteoma was recurred and broken out of edematous skin lesion. It was considered that an inappropriate surgical removal of the tissue which attached base boarder of the polyp would be cause of the recurrence of the osteoma.

**Key words :** ear polyp, osteoma, total ear canal ablation, dog

### Introduction

Osteoma is a benign tumor of the bone<sup>1,3</sup>. Its occurrence in the ear canal has not been reported in dogs. We present a case of an ear polyp of the external auditory canal which was histopathologically diagnosed as osteoma.

### Case

A 2-year-old, 3.8 kg intact female Maltese was referred to the Seoul Animal Medical Center for evaluation of recurrent ear pain and discharge from the left ear. Three months prior to presentation, the referring veterinarian examined the patient for evaluation of the left side facial edema, sensitivity on palpation and lack of blinking response. Minimal improvement of clinical signs was noted by following symptomatic therapy treated with antibiotics and corticosteroids twice over one-week period prior to referral. This case had been diagnosed otoscopically as external otitis accompanied by ear polyp and referred for surgical removal.

On physical examination, the dog was alert, bright and responsive with normal rectal temperature, heart and respiratory rates. However, the left side auricle and the face were erythematous and markedly swollen. The left ear canal was erythematous and exuded pink colored serous fluid. The exudates were admitted for a microscopic examination, culture and antibiotic susceptibility test, and revealed an inflammatory changes and sensitivity to enrofloxacin and cefotaxime.

The cornea has shown inflammatory changes. The patient did not present a blinking response to menace test in the left eye. After sedation, ear flushing using warm saline was carried out for examination of the left ear canal. The left ear canal was occluded by a polyp which completely occupied the inlet of horizontal ear canal and did not permit identification of the tympanic membrane.

Plain radiography and canalography was performed.

Canalography, using an iohexol(Omnipaque<sup>TM</sup>: 300 mg Iodine/ml, Nycomed Imaging AS, Oslo, Norway) as a contrast medium<sup>2</sup>, was performed to under sedation evaluate whether there was a rupture of tympanic membrane<sup>2</sup>. There was an appaent thickening of the bony radiopacity in the left osseous bulla and temporal bone. Canalography revealed a complete occlusion of the mid-portion of the horizontal ear canal with soft tissue mass(Fig 1). Contrast media flow was completely blocked by a polyp.

After antibiotics treatment for three days, the dog underwent extraction of the polyp by a total ear canal ablation method. During surgery, it was noted the polyp was pedicled along the tympanosquamous area with a fibrous tissue line. The lesion was entirely excised, the horizontal ear canal attachment to the external acoustic meatus with a rongeur,



**Fig 1.** Dorsoventral closed mouth canalogram of a 2-year-old Maltese with exostoses and ear polyp as an osteoma. There are considerable bony changes of the left temporal bone and bulla osseous. The contrast flow is occluded at the midportion of the horizontal ear canal by a polyp.

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secretory tissue that adherent to the rim of the external acoustic meatus with a curette.

The dog recovered well and showed no significant problems. Three months after surgery, however, the dog presented with a swelling and bleeding from the surgical incision line. Under sedation, gentle squeezing of the swollen area was performed and blood containing exudates and a polyp was protruded. The polyp was similar in size and shape to that of the prior surgery.

The polyp measured 8 × 4 mm and consisted of a white and hard bony material which was surrounded by soft tissue (Fig 2). On histopathological examination, the mass was composed of bony trabecular. Osteoblast infiltrated in the peripheral trabecular border (Fig 3). Based on these histopathological findings, the diagnosis was osteoma of the external ear canal.

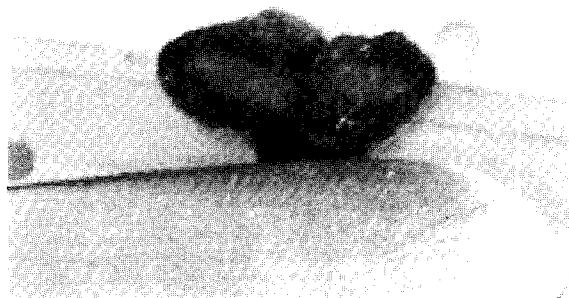
### Discussion

An osteoma, a benign tumor as a polyp in the external meatus has, to the best our searching, not been reported in dogs and is rare in human beings. It may lead to pressure symptoms such as headache, a predisposition to wax collection and external otitis and causes a conductive hearing loss by direct or indirect meatal occlusion in human medicine<sup>1,3-6</sup>. In our case, the hearing loss was not recognized, but the clinical signs include blood-containing discharge, pain and inflammation were presented. It was considered that the blood-containing discharge resulted from the congested polyp and an irrigated external ear canal by expanding pressure of the polyp.

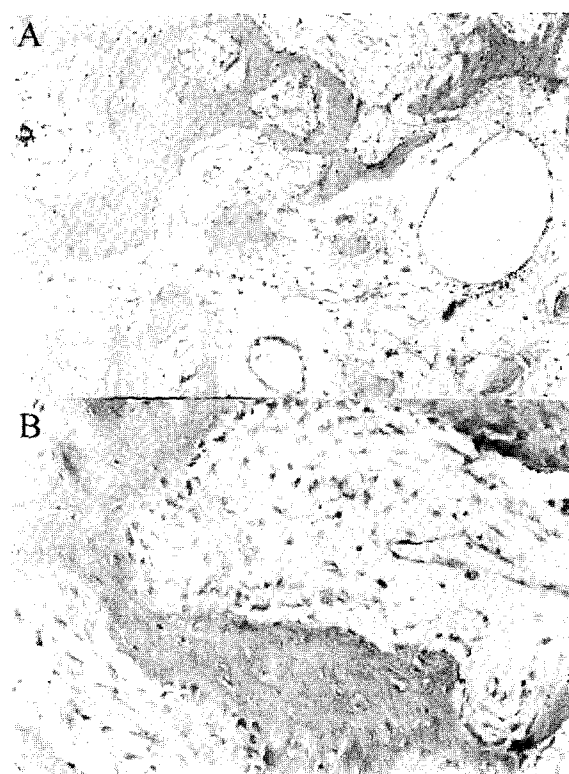
Osteoma is distinguished from exostoses, the former has characteristics such as unilateral, solitary and pedunculated lesion attached to the tympanosquamous or tympanomastoid suture lines, and superficial to the isthmus of the external ear canal<sup>7,9</sup>. The later is characterized by broad-based elevations of bone, usually multiple and bilaterally symmetric, involving the tympanic bone<sup>8</sup>. In this case, though it was not distinctly differentiate from origin, the polyp was arising from the tympanomastoid suture line tightly separated and unaffected with ear canal on surgical procedure.

On plain radiographic examination, the osteomatic polyp was not identified, but the complete filling defect by the dome-shaped polyp was confirmed in canalography<sup>2</sup>. Increased bony opacity change in the left temporal lesion was identified in an exostoses with histology<sup>8,9</sup>. Histologically, osteoma was covered by the squamous epithelium with an underlying periosteum. The internal structure of the lesion is characterized by bony trabecular structure which is surrounded by various sized fibrovascular channels, and osteoblast existing along with the peripheral trabecular border. These are differentiated with an exostoses of the external auditory canal characterized by devoiding of fibrovascular channels<sup>4,5</sup>.

Unfortunately, the polyp recurred three months after surgery. It has not been reported that the osteoma can recur after



**Fig 2.** Grossly, longitudinally incised specimen of an ear polyp as an osteoma in the dog. Note the bony structure surrounded by inflammatory fibrous tissue.



**Fig 3.** A) Histopathological examination of the ear polyp in the dog. This is an osteoma composed of various sized vessels and connective tissue which are located in the bony trabecular structure (HE stain, 100×). B) Along with the peripheral trabecular border, osteoblasts are visible (HE stain, 200×).

complete surgical removal. We suppose that it resulted from incomplete removal of the tympanomastoid and tympanosquamous tissue<sup>6</sup>. Exostoses of the temporal bone and otitis media were diagnosed with radioscopic image, but the owner decided to manage the patient conservatively. The patient does not show any clinical signs such as pain or discharge

from the ear currently.

To avoid recurrences of osteoma after surgery, the tympanosquamous structures which are attached with the base of polyp must be completely removed. Prior to surgery, the middle and inner ear must be examined with advanced diagnostic imaging tool such as computed tomography or magnetic resonance image for whether it was affected or not.

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## 개에서 외이도내 발생한 폴립성 골종 증례

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**요약** : 체중 3.8 kg인 두 살 된 말티즈 암컷이 왼쪽 귀에서 핑크색 분비물과 통증을 호소하여 내원하였다. 수평외이도내 폴립이 확인되었다. 조직병리 검사 결과 폴립은 골종으로 확인되어 총이도박리술로 제거하였다. 그러나 수술 3개월 후 부종성 피부병변을 동반한 골종이 재발하였다. 폴립 기저부와 부착된 주변조직의 철저한 제거가 골종 재발을 방지할 수 있다는 결론을 얻었다.

**주요어** : 이도내 폴립, 골종, 총이도박리술, 개