




## CLINICAL REPORT

## Surgical Removal of Nasopharyngeal Polyp in a DSH Cat

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## ARTICLE INFO

## ABSTRACT

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Feline nasopharyngeal polyps are benign, pedunculated, inflammatory lesions typically originating from the mucosa of the nasopharynx, auditory tube, or tympanic bulla. These polyps predominantly affect cats younger than three years of age and present with upper respiratory and vestibular symptoms. This case report describes a 15-month-old male domestic shorthair cat suffering from progressive respiratory distress, stridor, and dyspnea. Radiographic imaging revealed a soft tissue mass posterior to the soft palate, in the nasopharyngeal region. Following a thorough diagnostic evaluation, surgical removal of the polyp was performed. Histopathological examination of the excised mass revealed a suppurative granuloma composed primarily of neutrophilic infiltration and fibrous stroma. The patient, after a year's follow-up, had no signs and no clinical sign of recurrence. The present case emphasizes the importance of accurate diagnosis, the value of complete surgical excision, and long-term monitoring to detect potential recurrence. Surgical management is the choice treatment for nasopharyngeal polyps, and outcomes are generally favorable when performed with appropriate technique and follow-up care.

## Introduction

Feline nasopharyngeal polyps are benign, inflammatory growths with a pedunculated (stalk-like) appearance. These polyps usually develop from the mucosal surface of the nasopharynx, tympanic bulla, or auditory canal. Feline nasopharyngeal polyps can be either congenital or acquired. The exact etiology is not completely understood. Chronic inflammation is thought to play a key role by triggering abnormal tissue growth in the nasopharynx. Affected cats usually exhibit symptoms like stertor, dyspnea, sneezing, coughing, nasal discharge, dysphagia, head shaking, vestibular signs, Horner syndrome, and external ear canal discharges. While this condition is most common in cats younger than three years old, it can also affect older cats.<sup>1-3</sup>

Diagnosis of this condition is based on history, signs,

diagnostic imaging, and nasopharyngoscopic findings.<sup>1</sup> Radiographs may show nasopharyngeal soft tissue masses, thickening of the bulla wall suggestive of otitis media, and loss of the normal air opacity.<sup>2,3</sup>

Advanced imaging techniques including, computed tomography (CT) and magnetic resonance imaging (MRI) are helpful for determining the size, location, and extent of the polyp, as well as assessing its impact on surrounding structures.<sup>1,4,5</sup> Also histopathological exam of mass is essential to confirm the diagnosis and rule out other conditions that mimic nasopharyngeal polyp symptoms.<sup>6</sup>

Medical management for bacterial otitis with neurological, and respiratory signs along with a thickened bulla wall may also temporary resolve other clinical signs.<sup>5</sup> Surgical intervention is recommended in

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severe symptomatic cases. The goal of the surgery is complete resection of the polyp to avoid recurrence and prevent complications.<sup>2</sup> Two main surgical approaches are traction and avulsion or by bulla osteotomy (VBO), which is more invasive. Traction and avulsion is a simple, less invasive method, and has a relatively low recurrence rate approximately 11%, when done correctly.<sup>7,8</sup> The VBO is a complex procedure often reserved for cases, where the polyp extends into the middle ear or when other methods fail. However, VBO carries a higher risk of complications, including permanent Horner's syndrome and facial nerve paralysis.<sup>2</sup> In some cases, ventral rhinotomy provides better access to the affected areas for polyps that extend into the frontal sinus.<sup>9</sup>

### Case Description

A 15-month-old male domestic shorthair (DSH) cat presenting with signs of respiratory distress, stridor, and dyspnea was referred to Urmia University Veterinary Hospital. Clinical examination and radiography revealed the presence of nasopharyngeal polyp located at the end of the pharynx and behind the soft palate (Figure 1). On admission, the rectal temperature was 38.5 °C, heart rate was 130 beats per minute, and CRT was 2 seconds. The hematological analysis revealed leukopenia, anemia, and positive for *Mycoplasma haemofelis* on blood smear. Surgery for polyp removal was scheduled as the treatment of choice.

### Treatment and Outcome

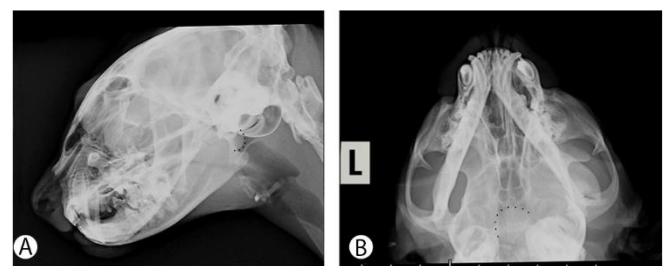
Prior to anesthesia induction, due to the patient's respiratory distress, preoxygenation was performed. Following sedation using intramuscular injection of acepromazine (0.03 mg/kg, Alfasan, Woerden, The Netherlands) and ketamine (10 mg/kg, Bremer Pharma, Warburg, Germany), anesthesia was induced using ketamine 10% (5 mg/kg, IV) and diazepam (0.2 mg/kg, IV, Caspian Tamin, Rasht, Iran). Flunixin meglumine 5% (1 mg/kg, IM, q 24 h, Rooyan Darou, Semnan, Iran) was administered for analgesia. The cat was intubated and anesthesia was maintained with 1% isoflurane inhalation (Piramal Critical Care, Bethlehem, USA), and a smaller-sized cuffed tracheal tube was used to prevent inhalation pneumonia due to bleeding. Cefazolin (22 mg/kg, IV, Afa Chemie, Tehran, Iran) was administered as a prophylactic antibiotic.

Initially, the area behind the soft palate was examined using a surgical hook to improve access to the mass. However, due to the presence of the mass on the rostral side of the soft palate, access to the polyp with surgical hook was not possible. Two stay sutures were placed on both sides of the incision site, and an incision approximately 1.5 cm long was made on the middle of soft palate (Figure 2). The polyp was identified after

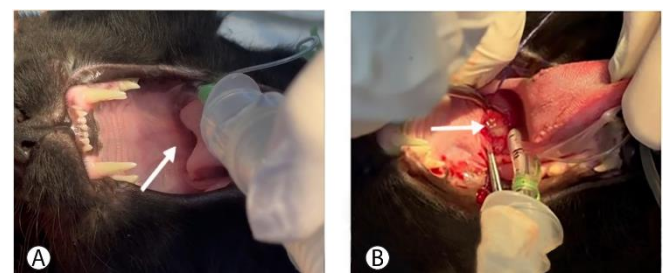
hemostasis and suctioning of the incision area. The mass was then grasped with Allis forceps and removed by rotation and traction. The incision on the nasopharyngeal area was lavaged and suctioned to remove blood clots. The incision site was sutured with polyglycolic acid suture material No 2-0 using a simple interrupted pattern. To remove possible residual secretions behind the tracheal tube's cuff, the cuff was partially deflated before extubation. About an hour after surgery, the patient exhibited symptoms of Horner's syndrome (Figure 3), which was resolved spontaneously 10 days after surgery. Cefazolin (q 12 h, IV) and flunixin meglumine (q 24 h, IM) were continued for three days postoperatively. The excised mass measured approximately 15 × 20 mm. Histopathological examination revealed inflammatory cells infiltration mostly neutrophils. Collagen fibers and fibrous stroma was observed (Figure 4). The mass was characterized as suppurative nasal granuloma by its distinct pathological and morphological features. A follow-up one year later revealed no signs of surgical complications, recurrence of symptoms and polyp.

### Clinical Relevance

Radiographic evaluation is essential for the diagnosis of polyps, and optimal diagnostic quality often requires anesthesia. Ventrodorsal, oblique lateral, and frontal open-mouth projections are useful in evaluating the tympanic bulla. On lateral views, polyps appear as a soft tissue opacity within the nasopharynx, and this projection is considered the most useful for their detection. This can only be accurately interpreted if the lateral radiograph is perfectly straight, such that the X-ray beam is parallel to the hard palate.<sup>9</sup>



**Figure 1.** Slightly oblique lateral (A) and dorsoventral (B) radiographs of the cat indicate the presence of a round soft tissue opacity in the behind of the soft plate. The mass filled the nasopharynx canal in lateral view. Part of the mass was marked by dotted line in both views.



**Figure 2.** (A) Arrow shows the bulge in soft plate. (B) After incision in soft plate polyp was seen. Arrow shows polyp.



**Figure 3.** Horner syndrome following surgery. The miotic pupil, drooping upper eyelid, and prolapsed third eyelid are symptoms of this syndrome.

Computed tomography and magnetic resonance imaging allow better evaluation and clearer view of the tympanic bulla and surrounding tissues.<sup>2,10</sup> Accurate treatment planning relies on a definitive diagnosis. Therapeutic approaches may include endoscopic or surgical methods, and complete excision is often curative.<sup>2</sup>

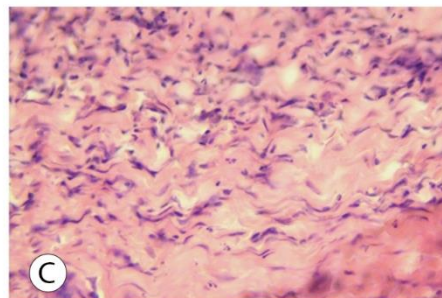
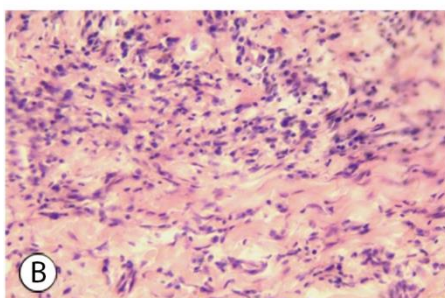
The prognosis of surgical intervention is generally good.<sup>11,12</sup> Fortunately, most cats recover uneventfully

following surgery. When the polyp is fully removed, signs significantly resolve in most of the patients.<sup>3,10</sup> Reportedly, megaesophagus has been identified in some cases involving patients with large nasopharyngeal polyp. This condition is secondary to chronic aerophagia resulting from the obstructive nature of the polyp. The treatment of this condition is only surgery.<sup>3,13</sup> The surgical procedure must ensure thorough excision of the polyp, including its base and any residual or associated tissue fragments. Compared to simple traction methods, both VBO and per-endoscopic transtympanic traction exhibit lower recurrence rates, which is attributed to the more thorough removal of the tympanic cavity mucosa. However, recurrence has been documented with all techniques, with reported intervals ranging from 19 days to as long as 46 months postoperatively. This makes follow-up care and monitoring essential.<sup>8</sup> In some cases, repeated surgeries may be necessary.<sup>2,11</sup>

Some complications after surgery include recurrence of polyps, chronic otitis media, Horner's syndrome and facial nerve paralysis.<sup>2</sup> Horner syndrome is seen in about 80% and 40% of cats undergoing bulla osteotomy and polyp traction removal, respectively.<sup>14</sup> A retrospective study of 92 feline cases of ear polyps found that DSH and Maine Coon breeds accounted for 48% and 37% of cases, respectively, suggesting a higher prevalence in DSH cats.<sup>11</sup>

Histopathology studies show that nasal polyps are characterized by predominant eosinophilic inflammation, with neutrophils as the predominant cells usually. In human, nasal polyps are characterized with current infiltration by eosinophils and mast cells.<sup>6</sup>

In conclusion, surgical excision remains the definitive treatment for feline nasopharyngeal polyps, with



**Figure 4.** (A) Gross feature of extracted nasopharyngeal polyp. (B) Inflammatory cells infiltrate dominated by neutrophils are seen with abundant fibroblasts. (C) In this section collagen fibers and fibrosis stroma was observed (hematoxylin and eosin staining,  $\times 400$ ).

favorable prognosis when complete removal is achieved. Advanced imaging modalities such as radiography, CT, and MRI aid in accurate diagnosis and surgical planning. Although complications like Horner's syndrome may occur postoperatively, these are typically transient. Long-term follow-up is essential to monitor for recurrence, which can arise months to years after surgery. Overall, careful surgical technique combined with appropriate preoperative assessment and postoperative care results in successful resolution of clinical signs and improved quality of life in affected cats.

### Conflict of Interest

None to declare.

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