

Diagnosis of Pharyngeal Sialoceles in a Dog by CT Scan : A Case Report

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Abstract

A 7-year-old, 10 kg male poodle dog was presented at the Small Animal Teaching Hospital, with the clinical signs of chronic coughing, bad deglutition and severe respiratory distress. On oral examination, a large mass arisen from the throat was found. Because the skull-cervical radiographs revealed only a large soft tissue pharyngeal mass which were difficult to indicate the mass types and the tissue invasiveness, the computed tomography (CT) was subsequently applied. The CT result showed that the mass was an encapsulated hypoattenuation mass (2.5 x 4.3 x 2.4 cm) at the right pharyngeal area without any adjacent soft tissue invasions. As the result, the surgical excision was effortlessly done and the histopathological result indicated a pharyngeal mucocele. For the concealed mass especially at the pharyngeal area as seen in this patient, CT was a beneficial and suitable imaging modality for all of the imaging diagnosis, the surgical planning and the prognosis.

Keywords: computer tomography, dog, pharyngeal sialoceles

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Introduction

A salivary mucocele or sialocele is an accumulation of saliva in tissues after damage to the salivary gland capsule or salivary duct. The secondary cause of salivary sialocele could be due to the sialolith induced duct obstruction (Lane, 2012). Sialocele is the most common salivary gland disorder in dogs, especially in the Poodles (Benjamino et al., 2012) and German shepherd, and it could be more commonly seen in dogs that are younger than 4 years of age (Lane, 1994). The mandibular and sublingual salivary glands are the most affected sites that saliva often be collected as the sialocele at the cervical and sublingual tissues. In contrast, the incidences of salivary sialocele were much lower at the pharyngeal and zygomatic areas (Lurye, 2008). After salivary gland or duct is ruptured, saliva would be collected in subcutaneous tissue, which is surrounded by vascularized connective tissue called a pseudocystic wall (Lane, 2012). Excepted for the painless and slow onset, clinical signs of sialocele could be varied in according to the locations of the primary site. For example: the soft tissue swelling developed at the ventral or ventrolateral area are often seen in the mandibular salivary sialocele whereas the dysphagia, tongue elevation and deviation are usually seen in the sublingual sialocele or the airway obstruction dyspnea are presented in dogs with a pharyngeal sialocele (Lurye, 2008). In the case of pharyngeal sialocele, it has been reported only 3% or 5/166 dogs among the sialocele affected other sites (Lane, 1994). According to the primary location, it was difficult to diagnose because the less valuable radiographic finding which caused by the superimposition of anatomical organs and undifferentiating among the soft tissue density mass; for example: mass, abscess and sialocele. Besides, a gross lesion of sialocele is sometimes alike the tonsillar mass or tonsillar abscess (Lane, 2012). The objective of this report was to illustrate to the superior diagnostic method for a pharyngeal soft tissue mass as the pharyngeal mucocele by computer tomography (CT). In addition, the conventional surgical technique that provided the successful outcome was also explained.

Materials and Methods

A 7-year-old, 10 kg male poodle dog was presented at the Small Animal Teaching Hospital, Faculty of Veterinary Science, Chulalongkorn University with the clinical signs of chronic coughing, bad deglutition and severe respiratory distress. After the oral examination, a large mass arisen from the oropharynx that caused the airways obstruction was found. Then, skull-cervical radiographs were obtained to investigate the soft tissue pharyngeal mass that the result revealed a 2.5 x 4.3 cm, soft tissue mass without bone involvement (Fig. 1). In addition, based on laboratory data, *Ehrlichia canis* was detected by buffy coat smear and severe thrombocytopenia (12,000 cells/ μ L) was also detected.

According to the mass was embedded in the lateral wall of the oropharynx, the CT was applied to determine the location and extension of the mass. After the premedication with diazepam (0.3 mg/kg; Atlantic Pharmaceutical Co.,Ltd, Thailand) and generalized anesthesia by induction with propofol (5 mg/kg; B.Braun Melsungen AG, Germany), the dog was intubated and maintained with isoflurane (Baxter Healthcare of Puerto Rico, USA). The patient was positioned on sternal recumbency, then the dog was scanned using the 64-slice multiple detector computed tomography (MDCT) unit with the slice thickness of 1.25 mm, a pitch of 0.53 at 120 kV and 250 mA (64-slice helical CT unit, Optima®, GE Thailand). The field of view was set to cover the head and neck area. After the survey images were obtained, the non-ionic, water soluble, iodinated contrast medium (iohexol, Omnipaque, USA) at the dose of 600 mgI/kg were intravenous administered using the automatic MDCT injector at the rate of 2 mL/second. When the contrast medium was presented at the mid cervical jugular vein, the post contrasts CT image were subsequently achieved. On the contrast enhanced-CT images, an encapsulated hypoattenuation mass (2.5 x 4.3 x 2.4 cm) was detected at the right pharyngeal area (Fig. 2A-C).



Figure 1 The skull-cervical radiographs showed a soft tissue density mass at oropharyngeal area (arrow), which caused the airways obstruction.

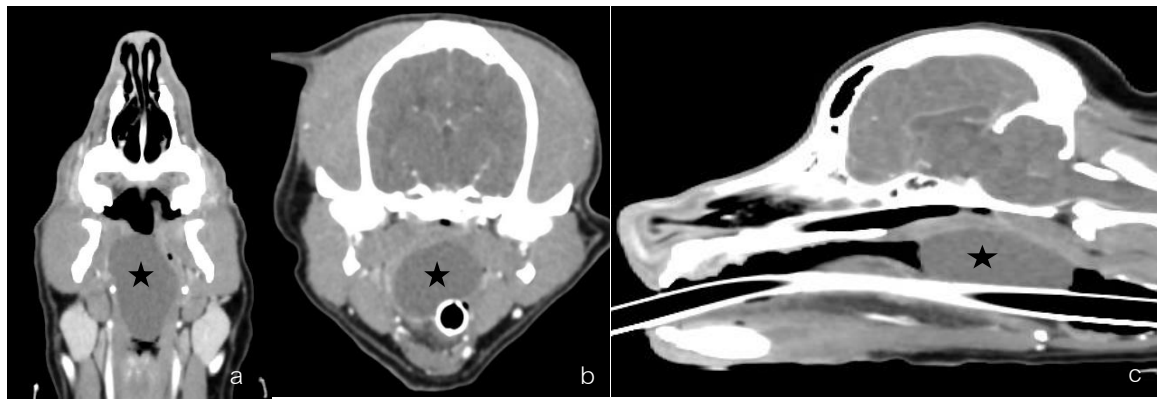


Figure 2 The coronal (a), axial (b) and sagittal plane (c) of computer tomographs (CT) presented a soft tissue mass (asterisk) at the oropharyngeal area. The pharyngeal mass revealed as an encapsulated hypoattenuation mass.



Figure 3 On the oral examination under the general anesthesia, the yellowish, soft to fluctuated in consistency, right paratonsillar oropharyngeal mass (arrow) was found.

Consequently, surgeon performed the removal of the mass under the general anesthesia. The pharynx was packed with gauzes to prevent debris and fluid to enter the throat. The patient was placed on the sternal recumbency with the held sling of the upper oral arcade of which position could unveiled the yellowish, soft to fluctuated in consistency, right paratonsillar oropharyngeal mass (Fig. 3). According to the gross lesion, the differential diagnoses could restrict only to either tonsillar abscess or pharyngeal sialoceles. The pharyngeal mass was held by allis tissue forceps, trimmed by Metzenbaum scissors and transected the base of the mass by monopolar electrocautery. However, the fluctuated mass was disrupted and a mucopurulent discharge was spilled out. Therefore, the rest of the sac subsequently taken off by dissecting digital pressure using gauze. Before removing a gauze from pharynx, the soft palate was closed in one layer with a continuous glyconate suture (Monosyn®, 4-0 metrio, Spain). In addition to the

administration of the intravenous prophylaxis antibiotics using cephalexin (25 mg/kg) (M&H Manufacturing Co., LTD, Thailand) and intramuscular analgesic using morphine (0.3 mg/kg) (M&H Manufacturing Co., LTD, Thailand), dexamethasone (0.5 mg/kg) (L.B.S. Laboratory LTD., Part, Thailand) was intravascular administered to prevent the pharyngeal swelling while doxycycline (10 mg/kg, sid) and folic acid (5 mg/day) were given as a treatment for *E. canis* infection, and tramadol (5 mg/kg, bid) for postoperative analgesia. Intra-fluctuated exudate from mass was submitted for bacterial culture and sensitivity test whereas the rest of the tissue was assigned for histopathology sample.

Results

A day after surgery, the patient was alert and normal in appetite. On oral examination, pharyngeal mucosa revealed mild degree of inflammation and

tempted to heal without other complications such as bleeding that usually occur as common complication after the pharyngeal operation (Fig 4). The bacterial culture and sensitivity test showed *Staphylococcus* sp.

which sensitive to a doxycycline that the patient was received as the anti-rickettsia treatment. Based on the histopathological examination, the pharyngeal mass was confirmed to be a chronic sialoceles adenitis (Fig 5).

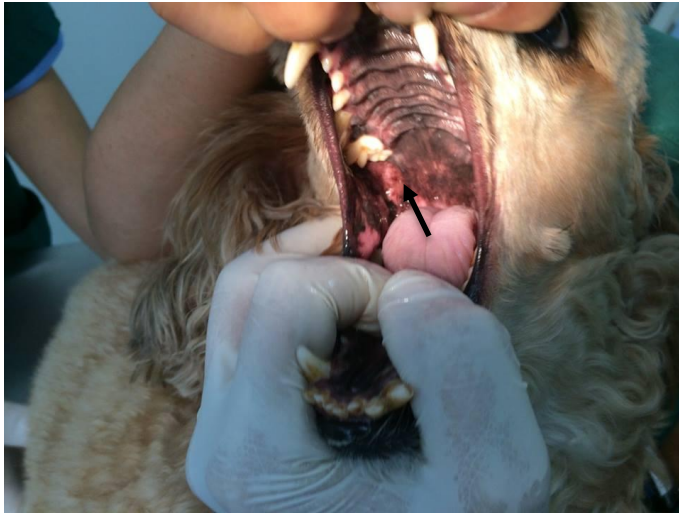


Figure 4 After day surgery, pharyngeal mucosa revealed mild degree of inflammation and tempted to heal without other complications (arrow).

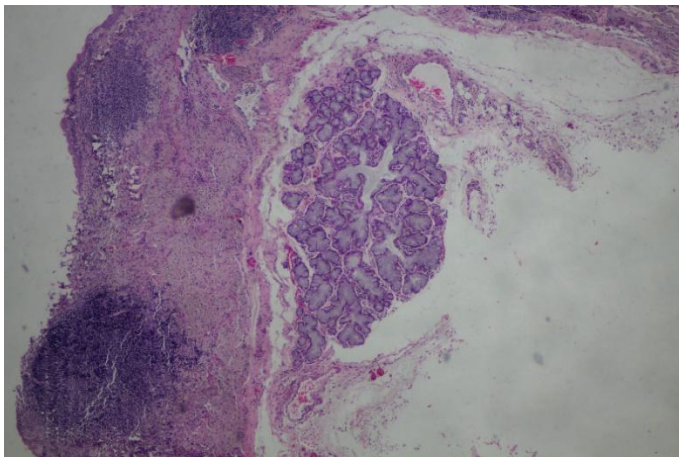


Figure 5 A submitted specimen collected from pharyngeal area was composed of destruction of salivary acini and mucinous substance (basophilic background) with moderate hyperplasia of salivary glands. The peripheral areas showed multifocal infiltration of predominantly segmented neutrophils and lymphocytes with interstitial fibrosis. The interlobular areas showed mild infiltration of chronic inflammatory cells.

Discussion

The injury of either the sublingual salivary gland or the duct by trauma causes leakage of saliva that usually from as three common saliva sacs, which were cervical mucocele at the ventral region of the throat, ranula at the sublingual mucosa area, and pharyngeal mucocele at the paratonsillar submucosal region (Lane, 2012). Without general anesthesia, pharyngeal mucocele, which is alike a tonsillar mass, could be difficult to diagnose on the oral examination. Therefore, further diagnostic procedure should be performed prior the final diagnosis and treatment planing. Although, the fine needle aspiration and radiographic examination to confirm the content of mass could be the simple diagnostic methods (Speakman et al., 1997), the location of the mass at oropharyngeal area may cause the difficulty to differentiate among polyps, abscess, mass, and mucocele. To confirm the sialoceles by ordinary imaging diagnosis, sialography could be a choice (Vallefuoco et al., 2011). At present, CT was increasingly to apply as the superior imaging diagnosis in veterinary medicine. In this case, CT was performed to differentiate diagnostic between sac or mass. For example, the CT image could be used to differentiate

the pharyngeal lumps among various causes such as pharyngeal mass, sialoceles, abscess and tumor. In the case of pharyngeal mass, the CT appearance would be related to the neoplasia in the oral cavity that variously detected depended on the tumor types whereas the sialoceles could be characterized by the enlarged, cystic-distended sac that may be concurrent with obstructive sialoliths. In addition, to differentiate the pharyngeal abscess, the fluid-hypodensity mass with rim enhancement would be detected with the enlarged medial retropharyngeal lymph node (Forrest and Schwarz, 2011). Furthermore, CT could detect a primary location and invasiveness that the information were important for the surgical treatment planning. According to the mass or lump in senile patients usually caused by neoplastic tissue, the precise preoperative diagnostic information prior the surgical treatment is crucial for the treatment achievement and accurate prognosis.

Surgical technique for treatment of pharyngeal mucocele had not previously been reported. Because the pharyngeal sialoceles is alike tonsillar mass, tonsillectomy may be applied to treat this problem. One study, Tonsillectomy has been reported compared a three techniques in dogs. First, the excision by scalpel, this technique revealed good in

healing ,but it was difficult for suture material ligation. Second, the excision of tonsils by electroceutery, this technique showed as an effortless procedure to accomplishment, but the healing was more longer than the first group. the last group was the laparoscope guided electroceutery. This technique provided good exposure to a surgical field that benefit to tonsillectomy at narrow space (Eesa, 2007). This study revealed that a conventional technique performed only by surgical excision using scapel to remove the pharyngeal sialoceles showed a good healing process, without any complications such as a hemorrhage, throat infection, ulceration, or recurrence of mucocele. Therefore, the conventional method of surgical management could be applied for the pharyngeal mucocele. However, the prosperous outcome would depend on surgeon's experience, equipment, and animal situation.

Acknowledgements

This study support by 90th year Ratchadaphiseksomphot Endowment Fund, Chulalongkorn University. The authors would like to thank the staffs from the Small Animal Teaching Hospital, Faculty of Veterinary Science, Chulalongkorn University for data and sample. Biopsy result was investigated by Anudep Rungsipipat from department of Veterinary Pathology, Faculty of Veterinary Science, Chulalongkorn University.

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บทคัดย่อ

การถ่ายภาพรังสีส่วนตัดอาศัยคอมพิวเตอร์เพื่อช่วยในการระบุตำแหน่งและวางแผนการรักษาใน สุนัขป่วยด้วยโรคถุงน้ำลายคอหอย : รายงานสัตว์ป่วย

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สุนัขพันธุ์พุดเดิ้ลเพศผู้ อายุประมาณ 7 ปี น้ำหนัก 10 กิโลกรัม เข้ารับการรักษาที่โรงพยาบาลสัตว์เล็ก ด้วยอาการไอเรื้อรัง กลืนอาหารและหายใจลำบาก จากการตรวจภายในช่องปากพบเนื้องอกขวางอยู่บริเวณคอหอย และจากการถ่ายภาพรังสีส่วนตัดระนาบเนื้องอกขนาดใหญ่บริเวณคอหอย แต่ไม่สามารถให้รายละเอียดเกี่ยวกับชนิดเนื้อเยื่อและการรุกรานของก้อนไปบริเวณข้างเคียงได้ ภายหลังการตรวจวินิจฉัยด้วยเทคนิคการถ่ายภาพรังสีส่วนตัดอาศัยคอมพิวเตอร์ เนื้องอกบริเวณคอหอยขนาด 2.5 x 4.3 x 2.4 เซนติเมตร อยู่ตรงตำแหน่งคอหอยข้างขวา มีขอบเขตชัดเจน ไม่รุกรานไปยังเนื้อเยื่อข้างเคียง ผลจากภาพรังสีส่วนตัดอาศัยคอมพิวเตอร์ช่วยบ่งชี้การวางแผนการรักษาด้วยวิธีทางศัลยกรรมและให้ผลการรักษาเป็นที่น่าสนใจ ผลพยาธิวิทยาพบว่าเนื้องอกเป็นโรคถุงน้ำลายคอหอย สำหรับลักษณะเนื้องอกที่สังเกตได้ยากโดยเฉพาะที่ตำแหน่งคอหอย การนำเทคนิคการถ่ายภาพรังสีส่วนตัดอาศัยคอมพิวเตอร์มาช่วยในการวินิจฉัยจะให้รายละเอียดทางภาพมากยิ่งขึ้น ตลอดจนวางแผนการรักษาให้มีประสิทธิภาพ และลดการเกิดผลข้างเคียงที่จะเกิดตามมาหลังการผ่าตัดให้มากที่สุด

คำสำคัญ: การถ่ายภาพรังสีส่วนตัดอาศัยคอมพิวเตอร์ สุนัข ถุงน้ำลายคอหอย ถุงน้ำลาย

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