

Case report

Retropharyngeal foreign body in a Down Syndrome girl

Nurul Atikah Hamat¹, Afiza Izura Mohammad Sofi², Zulkiflee Salahuddin³, Irfan Mohamad⁴

Abstract:

Pharyngeal foreign bodies are quite common. The diagnosis is usually clinical. The risk of complications including retropharyngeal abscess and mediastinitis are very low depending on the nature of foreign body and the duration taken for intervention. We share a challenging case of retropharyngeal abscess secondary to embedded foreign body in a Down syndrome patient, who presented with the sole presentation of torticollis. Surgical intervention with difficulties was performed with favourable outcome.

Keywords: Foreign body; Retropharyngeal abscess; Down syndrome

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Introduction

Pharyngeal and oesophageal foreign bodies usually remain intraluminal but sharp foreign body can get impacted and fully embedded in the walls. Sometimes it migrates extraluminally either spontaneously, or due to the attempt for removal by the patient or by manipulation of inexperienced surgeon. Impaction of foreign body into the soft tissues can cause acute inflammation ended with abscess formation. Retropharyngeal abscess is an immediate life-threatening emergency with the potential airway compromised and other complications such as mediastinitis, aspiration pneumonia, jugular venous thrombosis and carotid artery erosion.¹⁻³ Patients with diabetes, elderly and immunocompromised patients are more at risk to harbour this condition.⁴

Case presentation

A 15-year-old Down syndrome girl presented with foreign body sensation in the throat for 3 days duration with prior history of fish bone ingestion. She felt a sudden sharp pain in the throat followed by persistent

foreign body sensation and pain during swallowing. She tried to push the bone with food boluses but the symptoms persisted. There was no regurgitation, vomiting, haemoptysis or haematemesis. There was no dysphonia, dyspnoea or stridor. The patient started to experience low grade fever one day prior to admission. Her mother noted that the patient later developed neck swelling associated with limitation of neck movement.

On examination, her general condition was good with normal vital signs. She was afebrile. Neck examination showed presence of laryngeal crepitus with ill-defined tender neck mass. She refused for examination of the throat and laryngoscopic evaluation. There was torticollis due to the tenderness on neck movement. There was no sign of neck trauma. Other examinations were unremarkable.

Lateral soft tissue neck radiograph showed widening of prevertebral space, marked by area of increased opacity from base of skull till the level of sixth cervical spine (C6) and straightening of cervical

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Figure 1: Lateral soft tissue neck radiograph showed widening of the prevertebral space containing area of opacity from base of skull to the level 6th cervical spine (C6) and straightening of the cervical spine.

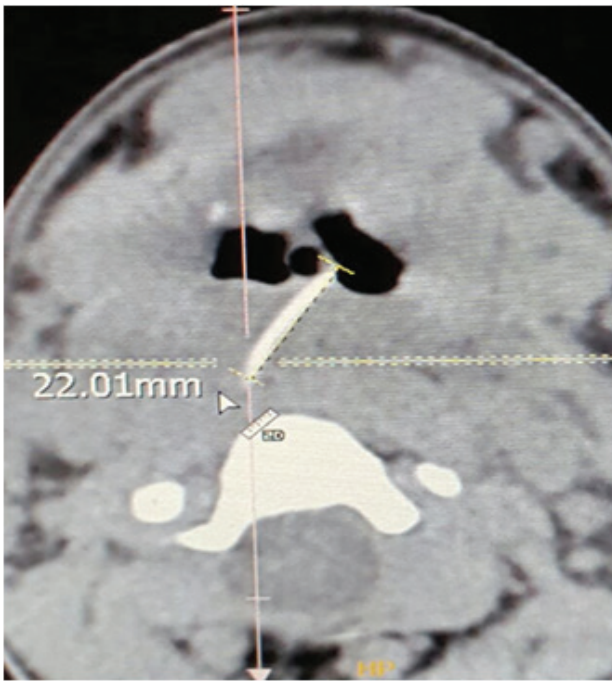


Figure 2a: Axial CT showing linear hyperdensity foreign body embedded within soft tissue of the posterior oropharynx at the level C2-C3.

spine (Figure 1). There was loss of cervical lordosis. Computed tomography (CT) scan was performed and revealed linear hyperdensity lesion measuring 2.2 cm in length. It was embedded within the soft tissue of the posterior oropharynx at the level C2-C3, associated with air pockets within (Figure 2). This was likely

representing a foreign body. The retropharyngeal soft tissue was thickened and appeared hypodensed with widest dimension measuring 1.8 cm in thickness, representing inflammatory changes. These CT findings were suggestive of retropharyngeal inflammation or early abscess formation secondary to foreign body.

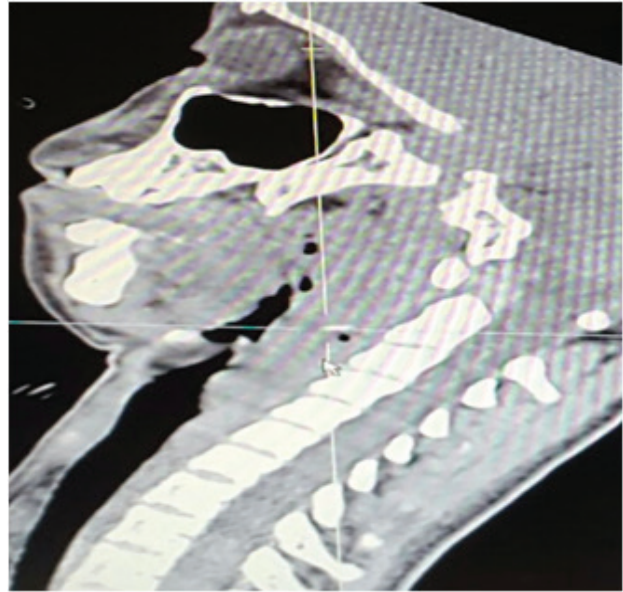


Figure 2 b : Sagittal CT cut showed a linear foreign body, thickened retropharyngeal space with presence of air pockets indicating abscess

The patient was subjected for direct laryngoscopy under general anaesthesia to look for foreign body followed by abscess drainage. However, the operation could only be carried out on the second day of admission because the patient did not tolerate to be kept nil by mouth on the first day.

Upon direct laryngoscopy, patient was in supine position with neck extended with a small sandbag. Great caution to the cervical vertebrae was ensured by applying the dressing towel for maintaining the minimal neck extension. A Boyle-Davis mouth gag was gently introduced to maximise the exposure of the oral cavity and oropharynx. The posterior pharyngeal wall appeared bulging, consistent with radiographic findings. A vertical incision was made at posterior pharyngeal wall corresponding to the foreign body level seen in the CT which was at the C2-C3 level. There were sloughs at posterior pharyngeal wall with minimal pus discharge. Vertical incision about 1 cm in length was made to explore the wound. However no foreign body was noted upon searching. She was diagnosed as having retropharyngeal abscess secondary to the migrated foreign body. The

patient was put on broad spectrum antibiotics. Her symptoms of foreign body sensation disappeared in a few days and she became totally asymptomatic.

Post operatively, the patient tolerated orally and there was no more neck pain. A repeat CT scan showed normal findings with no foreign body visualised. This could be due to migrating foreign body and it was impossible for the ingested fish bone to be degraded within short period. The patient was discharged home with oral antibiotics. She was completely asymptomatic when seen 2 weeks after discharge.

Ethical clearance:

This case report was submitted after getting approval from the Ethics Committee of School of Medical Sciences, Universiti Sains Malaysia Health Campus, Kota Bharu, Kelantan, Malaysia.

Discussion

Ingestion of foreign bodies was observed in 80% of cases of children in oral phase, usually between six months and six years.^{1,4} In adults, the ingestion of foreign bodies are mainly observed in patient with dental prosthesis, prisoners, psychotics or patients with mental retardation and alcoholics.^{2,5} The most common chief complaints are neck pain, fever, sore throat, dysphagia, odynophagia, trismus and neck mass. Limitation of neck extension in 45% of children with foreign body ingestion, torticollis in 36.5% and limitation of neck flexion in 12.5% were observed as the presenting symptoms.⁶

This case highlights a management challenge in a patient with Down syndrome presented with torticollis, with history of fish bone ingestion. A complete ear, nose and throat examination should be done in all suspected foreign body ingested patients. However the patient was not cooperative for laryngoscopy or even examination of the oral cavity and posterior pharyngeal wall with a tongue depressor. CT scan is the next indicated investigation. It must be performed immediately to avoid delay in diagnosis, which might lead to serious complications. In our case, the delay was about 48 hours before patient underwent operation under general anaesthesia.

Foreign body can get embedded in the tonsil, base of tongue, pyriform fossa and in any area of upper oesophagus. Factors reported to increase the risk of complications included a sharp foreign body, foreign body with a wide diameter, advanced age and a longer duration of impaction after foreign body ingestion.⁵ However, in some cases, sharp foreign bodies can perforate the upper digestive tract and can migrate into the soft tissue of the neck. It happened due to strong contraction of the muscles during swallowing

and the mechanism of migration is thought to be due to movement of neck muscle and viscera during voluntary and involuntary movements of head and neck structures.⁷ These migrating foreign bodies can cause life threatening deep neck abscess, such as parapharyngeal and retropharyngeal abscess that can lead to mediastinitis. It can also penetrate adjacent visceral structure and precipitate vascular complications.⁵ CT scan of the neck will help in diagnosing migrating foreign body.

Retropharyngeal abscess due to impaction of pharyngeal foreign body extraluminally must be managed immediately because it is a potentially life-threatening infection in deep space of neck which can compromise the airway. Patients with retropharyngeal abscess present with worsening constitutional symptoms such as fever, decreased appetite, malaise and irritability.³

Retropharyngeal space extends superiorly to the base of skull and inferiorly to the mediastinum at the level of tracheal bifurcation.⁸ This is the main reason why mediastinitis can develop in a case of retropharyngeal infection.

Lateral soft tissue neck radiograph contributes significantly in the diagnosis of a retropharyngeal abscess.⁶ Widening of anteroposterior diameter of retropharyngeal space is pathologic. The measurement of the distance from the anterior surface of C2 vertebra to the posterior border of the airway should be 7 mm or less, regardless of the age. With measurement starting at the C6 vertebra, this width should be 14 mm or less in children younger than 15 years of age and 22 mm in adults.⁸ A simpler but less precise rule is that on soft tissue cervical radiograph, the prevertebral area should be less than one and half the width of the corresponding vertebral body. In this case, it was about three times the size of the vertebral body, which is unusual presentation.

CT scan was done to confirm the presence of foreign body and the exact location. But, its limit is the fact that it can't differentiate a cellulitis and abscess in the retropharyngeal space.³ CT scan is the most sensitive modality when looking for a foreign body and it remains the preferred investigation in such cases. On CT scan, a foreign body is usually seen as a calcified linear structure surrounded by inflammatory tissue and is invariably seen if specifically looked for.²

The implementation of the radiological assessment should not delay starting antibiotic therapy that subsequently adapted to the result culture and sensitivity. Prompt surgical intervention with examination under anaesthesia for removal of

foreign body and drainage of the abscess was the most essential part of the management of this patient. Down syndrome is a common congenital abnormality that associated with multi-system problems that need thorough assessment pre-operatively. Pre-operative complications include airway obstruction, difficult intubation, post extubation stridor, bronchospasm and neurological problem due to atlantoaxial subluxation.⁹ Approximately 20% of patient with Down syndrome have ligamentous laxity of the atlantoaxial joint. This condition may allow C1-C2 subluxation and predispose patient with Down syndrome to spinal cord injury. In preoperative assessment, it is advisable to inform parents or caretakers of the risks associated with the manipulation of the head and neck required for anaesthetic management and operative procedure. Although most of the population with Down syndrome is asymptomatic with atlantoaxial instability, the signs and symptoms should be noted such as hyperactive deep tendon reflexes, ankle clonus, muscle weakness, increased muscle tone, neck discomfort and abnormal gait. Great care with a soft collar to maintain the neck in a neutral position and as valuable reminder that cervical instability may exist during perioperative or postoperative period.¹⁰ In this case, intubation was uneventful. Care was taken intra-operatively during application of a sandbag to extend the neck and during introduction of mouth gag to expose the oral cavity and oropharynx. Intraoperatively and postoperatively were uneventful in this patient.

This patient was diagnosed as a case of retropharyngeal abscess with migrating foreign body. There were two possibilities in this case either the foreign body has dislodged into aerodigestive tract and being

swallowed or the foreign body migrated elsewhere. Most of ingested of foreign bodies pass through the aerodigestive tract without a problem. It is depends mainly on the nature of the foreign body and the period of the therapeutic management.⁷ In this case, it is highly possible that the foreign body had dislodged and been swallowed because there was a delay from onset of symptom to the therapeutic intervention time. This finding was confirmed postoperatively by repeating the CT scan which revealed normal scan and no foreign body was seen.

Conclusions

Pharyngeal foreign bodies are common and the outcome is favourable when the diagnosis and extraction are made on time. The occurrence of retropharyngeal abscess is rare with prompt diagnosis and treatment with antibiotics and surgical drainage and removal of foreign bodies. Diagnosis of extraluminal migration of foreign body can be established with CT scan of neck which provides a decision making for surgical intervention and further management. Preoperative and intraoperative care is essential for best outcome for patients with Down syndrome.

Conflicts of interest

None declared

Author's contribution:

Data gathering and idea owner of this study: Hamat NA, Sofi AIM.

Study design: Hamat NA, Sofi AIM, Mohammad I

Data gathering: Hamat NA, Sofi AIM, Salahuddin Z

Writing and submitting manuscript: Hamat NA.

Editing and approval of final draft: Hamat NA, Sofi AIM, Salahuddin Z, Mohamad I

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