OMOHYOID MUSCLE SYNDROME: A CASE REPORT

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Abstract

Omohyoid muscle syndrome (OMS) is one of the rare causes of lateral neck swelling during swallowing and it is often a worrisome observation due to the concern of malignancy and cosmetic deformity. Anatomical variation, congenital weakness, or trauma may cause incompetence of the fascial-retaining mechanism and subsequently OMS. Its prevalence is unknown as only a few cases were reported in the past and none in Malaysia. Diagnosing OMS is very challenging. Hence, imaging techniques like real time ultrasound or dynamic computed tomography can be useful in assessing the affected muscles.

Keywords: Omohyoid Muscle Syndrome, Sternocleidomastoid Muscle, Gymnasium Work Out, Malaysia

Introduction

Omohyoid muscle syndrome (OMS) is a rare clinical condition whereby there is a presence of mass at the lateral aspect of the neck during swallowing due to dysfunction of the omohyoid muscle. The mass disappears immediately after swallowing and cannot be located by palpation. The patient may have associated symptoms like dysphagia, discomfort, and foreign body sensation. There is no progression of the mass noted nor voice changes seen. It presents as a characteristic X-shaped lateral neck protrusion upon swallowing.

There are several hypotheses on the mechanisms responsible for this syndrome. Failure of the fascial retaining mechanism of the deep cervical fascia is one of the postulated mechanisms responsible for OMS. Anatomical variation congenital weakness, or trauma can cause incompetence of the fascial-retaining mechanism (1). There are only a few cases reported on this syndrome. The prevalence of the disease is still yet to be determined and has not been reported in Malaysia. Herein we present the classical presentation of a 34-year-old medical practitioner who acquired this condition.

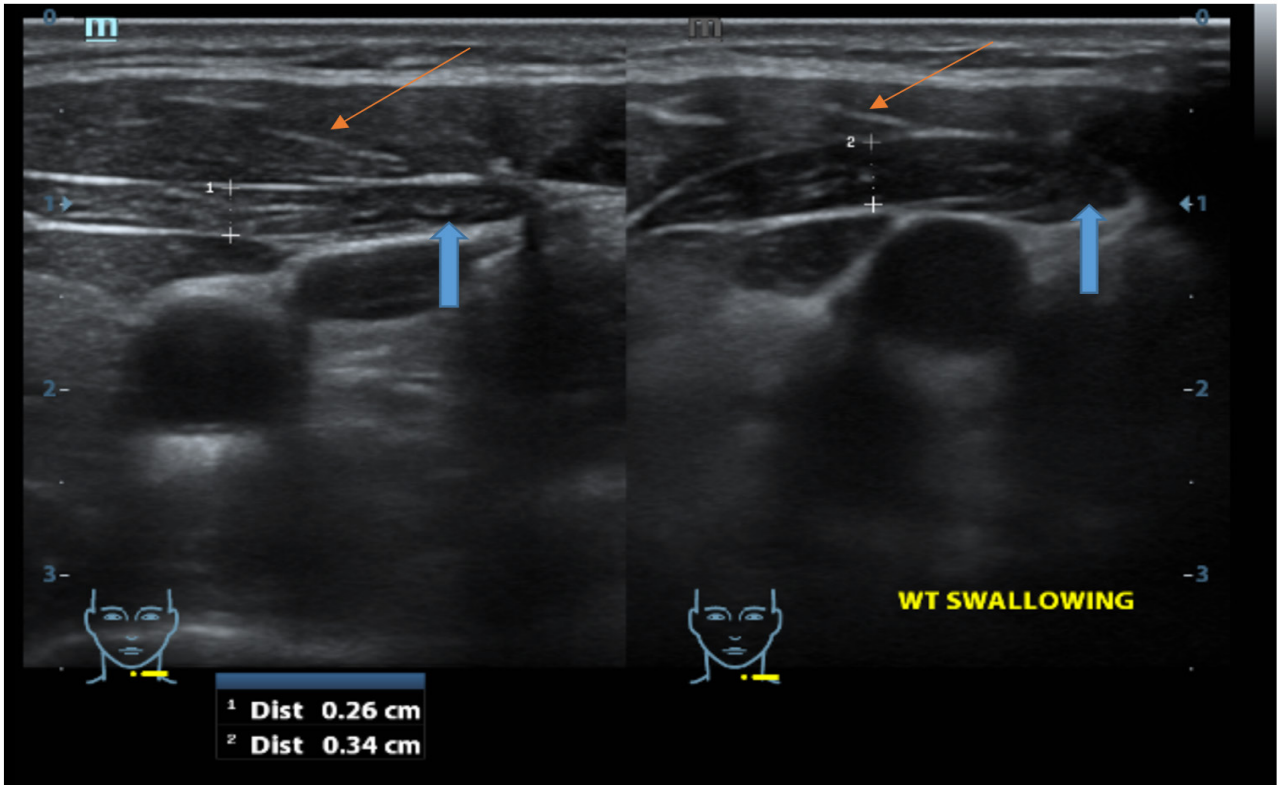
Case report

A 34-year-old Chinese female medical practitioner with underlying hypertension on treatment presented to otorhinolaryngology (ORL) clinic with the complaint of left lateral neck swelling for about one-year duration. The swelling was visible and palpable only during the act of swallowing. However, the swelling was not painful, and no skin changes were noted. There was no associated dysphagia, odynophagia, shortness of breath or voice changes. There were no signs and symptoms of hyperthyroidism. The patient also noticed that the swelling was getting bigger. Further, there is no family history of malignancy nor trauma. The patient reported a history of work out in the gymnasium with mild weightlifting.

Examination revealed left lateral neck swelling which only became apparent upon swallowing and coughing. No tenderness was elicited. No cervical lymph nodes were palpable bilaterally. Flexible nasopharyngolaryngoscopy showed normal findings. The thyroid function test showed normal parameters (T4:16.3 and TSH: 1.51). The first imaging investigation carried out was an ultrasound of the neck, which revealed normal thyroid gland. No neck

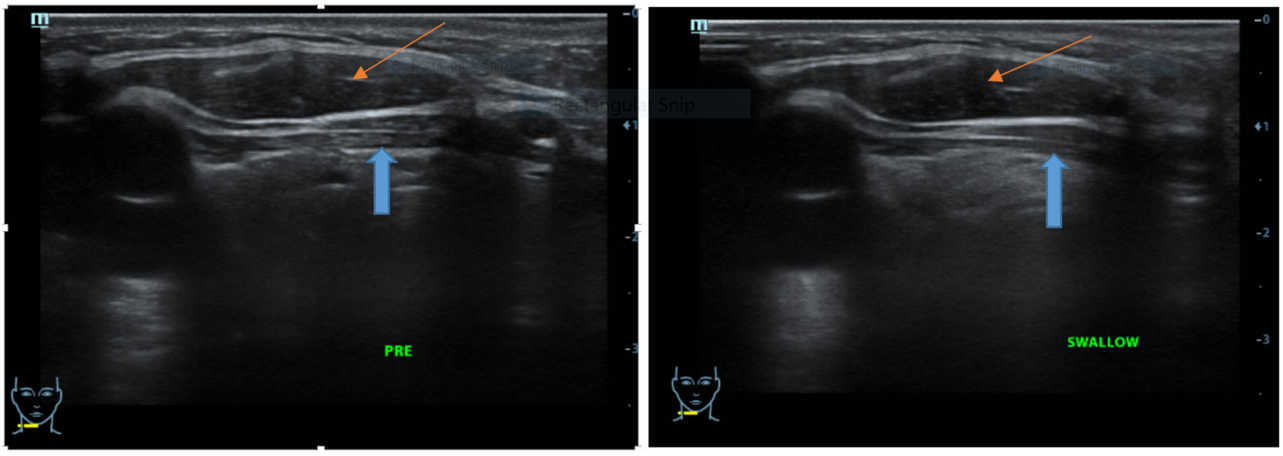
masses or enlarged lymph nodes were seen bilaterally. Chest radiograph was also normal.

The patient was under ORL clinic follow up with persistent left lateral neck swelling. In view of no definite pathology being identified and only with a history of mild weightlifting, the suspicion of OMS was raised. Repeated ultrasound neck at rest and during swallowing showed prominent bulging of the left omohyoid muscle (Figure 1) compared to the right (Figure 2). These findings are consistent with clinical diagnosis of left OMS. The findings were informed to the patient and corrective cosmetic surgery was recommended as an option for cosmetic purpose. However, the patient declined any surgery and is not seeking any treatment.



(a) (b)

Figure 1: Ultrasound neck on the left side of patient showing prominent contraction of the left omohyoid muscle (blue arrow) during swallowing (b) as compared to during rest (a). The left sternocledomastoid muscle (orange arrow) appears tented during swallowing with slight gliding anterolaterally (b).



(a) (b)

Figure 2: Ultrasound neck on the right side showing symmetrical appearance of the omohyoid muscle (blue arrow) during rest (a) and during swallowing (b)

Discussion

Omohyoid muscle belongs to the infrahyoid muscles group which arises from the superior border of the scapula and suprascapular ligament. The omohyoid is a paired, flat strap of muscle that is made up of superior and inferior bellies joined by an intermediate central tendon. The inferior belly is attached to the upper border of the scapula and the superior belly is attached to the lower border of hyoid bone. The primary function of the omohyoid muscle is to depress and fix the hyoid bone during swallowing. The central tendon which connects the inferior and superior belly lies immediately posterior to the sternocleidomastoid muscle. The central tendon is attached to the clavicle by a fascial sling or fascial retaining mechanism which is composed of two separate layers of the deep cervical fascia.

Omohyoid muscle syndrome is a rare clinical condition whereby the patient presents with an X-shaped mass at the lateral aspect of the neck upon swallowing. Patients may feel discomfort or dysphagia when the mass appears. They have various types of complaints as well like pain, abnormal sensations, voice changes, choking and dysphagia (2, 3).

There are only a few case reports published on this disease. The geographical and racial distribution of the OMS is still unknown. Moreover, the few cases that were reported were mainly from Asian countries like China, Japan, Korea, and Indonesia. Ye reported the first OMS case in 1980 (4). In this case, the patient presented with bilateral neck masses upon swallowing. Prior to this, similar terminology of OMS was reported in The Lancet in 1969 (3) whereby the patient showed symptoms like pain, dysphagia, and voice changes most likely due to spasm or cramping of the omohyoid muscle. Since there was no lateral neck mass presented in this case, the term OMS was considered not applicable with the current concept of OMS (1, 5). The exact pathophysiology of the OMS is still unknown, but several hypotheses have been proposed to the mechanism of OMS (1). One of them is failure of the omohyoid muscle to lengthen due to muscle fiber degeneration (1). Another hypothesis is caused by loosening or failure of the fascial-retaining mechanism of the omohyoid muscle (1). Loosening of the fascial attachment at the intermediate tendon causes excessive lateral movement of the omohyoid muscle which then elevates the overlying sternocleidomastoid muscle, forming the clinically visible X shaped lateral neck mass during swallowing. The exact etiology for the loosening of the fascial attachment is unknown but anatomical variation or congenital weakness in development, racial predisposition, chronic fatigue, or trauma may contribute to the development of the omohyoid muscle (1, 2). Lee et al. (2015) reported a similar case of OMS in a 22-year-old mixed martial art athlete (6). The possible cause of OMS was reported due to loosening of the fascial-sling mechanism secondary to possible tear in the fascial by repeated injury to the neck muscles. Similarly, in our case, the possible cause of the OMS was likely due to repeated injury as the patient had a history of mild weightlifting at the gymnasium. Imaging of the OMS is challenging. In this case, repeated real time ultrasound of the neck was able to demonstrate the lateral movement of the left omohyoid muscle as well as anterolateral gliding of the overlying sternocleidomastoid muscle during swallowing. Besides real time ultrasound, Kim et al. (2) also showed the lateral movement of the omohyoid muscle with tenting phenomenon to the adjacent sternocleidomastoid muscle utilizing dynamic computed tomography during swallowing.

Literature on treatment options on OMS are limited. The treatment options include cosmetic correction by botulinum toxin injection or surgical division of the central tendon. Surgical correction option was offered to our patient. However, the patient declined surgery.

Conclusion

Omohyoid muscle syndrome is a rare clinical condition which can occur following repeated trauma to the fascial sling mechanism of the central tendon. Classical presentation would be presence of lateral neck mass only upon swallowing in the absence of other associated symptoms. In our patient, the possible cause for this would be repeated trauma during gymnasium activities. Real time ultrasound or dynamic computed tomography are useful imaging techniques to assess the affected omohyoid muscles and for diagnostic purposes.

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Competing interests

The authors declare that there is no conflict of interest.

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Informed consent

Verbal informed consent was obtained from the patient's next of kin for inclusion in this report. Research and ethics committee approval for case reports is not a requirement according to Medical Research and Ethics Committee and Institute for Clinical Research Malaysia.

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