



# Odynophagia in individuals with neck pain: the importance of differential diagnosis in physiotherapy practice

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Odynophagia refers to painful swallowing caused by various underlying factors that must be excluded to determine the best treatment approach. Neck pain is a debilitating condition requiring treatment in rehabilitative settings. There are several circumstances in which odynophagia and neck pain coexist, such as tendinitis of the longus colli muscle and paravertebral calcification, prevertebral and retropharyngeal abscess, esophageal perforation, aortic dissection, thyroid cartilage fracture, thyrohyoid ligament syndrome, pneumomediastinum and subcutaneous emphysema, and after physical exercise. Physiotherapists are professionals most likely to encounter individuals with neck pain and provide interventions such as massage, manual therapy, exercise, and electrotherapy. Therefore, it is important to recognize that neck pain can stem from different clinical conditions that require interventions other than physiotherapy. A differential diagnosis is crucial to ensure appropriate referrals for therapeutic interventions.

**Keywords:** Cervical spine; Manual therapy; Physiotherapy; Rehabilitation; Swallowing

## Introduction

Odynophagia refers to painful swallowing caused by various underlying factors that must be excluded to determine the best treatment approach. Pain occurs during bolus transit and disappears once the swallowed material has left the esophagus [1,2]. The term 'odynophagia' should not be used interchangeably with that of dysphagia, which is defined as difficulty in swallowing and abnormal transit of solids and liquids [2-4].

Neck pain is a musculoskeletal problem that commonly affects

middle-aged individuals and can be categorized according to its duration and characteristics (mechanical, neurological, or secondary to other conditions) [5]. When a patient presents with neck pain and painful swallowing, it is crucial to consider a range of possible causes for an accurate diagnosis. Because patients experiencing neck pain often seek treatment from a physiotherapist, it is important to determine when odynophagia may require further investigation in the context of physical rehabilitation.

Here, we describe the clinical conditions in which odynophagia and neck pain coexist.

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## Odynophagia and neck pain coexist in various diseases

If an individual complains of odynophagia with neck pain, it could indicate various medical conditions. Odynophagia and neck pain coexist in several conditions whose primary treatment modalities are not physiotherapeutic [6-17], as shown in Table 1.

### Tendinitis of the longus colli muscle and paravertebral calcification

The longus colli muscle (LCM) originates from the anterior tubercles of the transverse processes of the C2–C5 vertebrae, T1–T3 vertebral bodies, and the lower cervical and upper thoracic vertebral bodies. It is divided into three portions, runs anteriorly in the neck, and is inserted into the anterior tubercles of the atlas (C1), C6 vertebra, and upper cervical bodies. This muscle is responsible for forward and lateral flexion, and neck rotation. It is innervated by the cervical and brachial plexuses (C2–C8) [18]. Tendinitis of the longus colli is a painful condition caused by acute inflammation of the muscle's tendon, also known as acute retropharyngeal tendinitis or acute calcific prevertebral tendinitis [6]. Symptoms of tendinitis of the longus colli include sore throat, odynophagia, headache, acute neck pain with limited movement, fever, neck stiffness, and tenderness in the paraspinal muscles [19-27].

Retropharyngeal calcific tendinitis, also known as paravertebral calcification, occurs when calcium hydroxyapatite crystals deposit in the LCM and tendon, leading to inflammation and pain [20,25]. The sudden onset of intense neck pain, limited range of motion, and odynophagia are the primary symptoms of retropharyngeal calcific tendinitis. Mild headaches with low-grade fever may also occur. Computed tomography (CT) is the gold standard diagnostic procedure for both LCM and retropharyngeal calcific tendinitis. CT shows calcifications anterior to the C1–C3 vertebrae along with symmetrical retropharyngeal effusion [6,19-

23,25-27].

The primary treatment approach for this condition involves using nonsteroidal anti-inflammatory drugs or oral steroids. The symptoms usually resolve within 1 to 2 weeks [19]. However, in some instances, antibiotics administration has been recommended [6,19,24,26,27] because LCM and retropharyngeal calcific tendinitis may be misdiagnosed as retropharyngeal abscess (RPA). Therefore, early identification of tendinitis is crucial to prevent the unnecessary use of antibiotics.

### Prevertebral abscess and cellulitis, and retropharyngeal abscess

Although antibiotics have helped reduce the occurrence of deep neck infections, these infections are still a significant factor leading to serious complications such as sepsis, airway blockage, pneumonia, invasion of internal jugular veins, or even dissemination to other areas [7,8]. Patients with prevertebral disease typically experience symptoms such as neck pain, painful swallowing, neck stiffness, fever, and back pain. CT and magnetic resonance imaging can be used to detect prevertebral abscesses and cellulitis. In a study including 11 patients diagnosed with prevertebral abscess, most were treated with incision and drainage of the abscess, followed by intravenous antibiotics [7]. In the same study, one patient with prevertebral cellulitis underwent cervical laminectomy because of the onset of quadriplegia [7].

A RPA can follow ingestion or removal of a foreign object, medical procedures like endotracheal intubation or laryngoscopy, or infections. Symptoms of odynophagia and neck pain can also be present. While ingestion of foreign bodies, such as fish or chicken bones, seems to be the primary cause, other factors like local injection, peritonsillar abscess, esophageal perforation (EP), or radiotherapy can also contribute to the development of RPA [8,9]. Treatments for RPA include antibiotics and surgical drainage [7,8].

**Table 1.** Clinical conditions in which odynophagia and neck pain can coexist

Condition	Treatment
Tendinitis of the longus colli muscle and paravertebral calcification	Nonsteroidal anti-inflammatory drugs or oral steroids [19]
Prevertebral abscess and cellulitis, and retropharyngeal abscess	Antibiotics and surgical drainage [7,8]
Esophageal perforation	Surgical treatment options include endoscopic removal [9]
Aberrant subclavian arteries, aortic dissection and aneurysm	Surgical [17]
Pneumomediastinum and subcutaneous emphysema	Avoiding oral food intake, oxygen supplementation, empirical antibiotics, and pain medication [28-30]
Pneumomediastinum after physical exercise	High-concentration oxygen and oral analgesia [16]
Thyroid cartilage fracture	Injection of steroids and local anesthetics [14]
Thyrohyoid ligament syndrome	Voice rest and steroids [13]

## Esophageal perforation

Ingesting foreign objects along with food has been previously noted as a leading cause of EP, particularly in Asia, due to dietary practices [9,10]. Symptoms of EP typically include painful swallowing, difficulty in swallowing, excessive salivation, and pain. CT is highly effective (sensitivity, 100%) in detecting foreign objects and EPs. The treatment options for perforation following foreign body ingestion include endoscopic extraction of the foreign body followed by perforation repair; while the nonsurgical options include antibiotics, avoid oral food intake for a specific period, nasogastric tube placement for feeding, proton pump inhibitors, and percutaneous drainage [9].

## Aberrant subclavian arteries, aortic dissection, and aneurysm

Patients with aberrant subclavian arteries may experience odynophagia, dysphagia, and dyspnea as presenting symptoms. Aberrant subclavian arteries involve the aortic arch and can lead to aneurysmal dilation of the distal arch or proximal descending thoracic aorta. Moreover, about 60% of these cases present with Kommerell diverticulum, an aneurysmal dilatation of the base of aberrant subclavian arteries [17]. Furthermore, odynophagia and neck pain can also be symptoms of aortic dissection [11,12].

## Pneumomediastinum and subcutaneous emphysema

Pediatric patients experiencing neck pain, odynophagia, cough, dyspnea, torticollis, and neck and upper chest swelling may be diagnosed with spontaneous pneumomediastinum [15]. This condition can be evaluated by using chest radiography and CT. Similarly, adults present with symptoms of pneumomediastinum may also experience neck pain, swelling, and odynophagia. Treatment options include avoiding oral food intake, oxygen supplementation, empirical antibiotics, and analgesic support [28-30]. Spontaneous pneumomediastinum with odynophagia and neck pain can occur after physical exercise as well [16]. In a case report, Faria et al. [16] described a young patient who presented with odynophagia and neck pain after a physical exercise schedule at a gym class. The patient developed pneumomediastinum, which resolved quickly after treatment with high-concentration oxygen support and oral analgesia.

## Thyroid cartilage fracture and thyrohyoid ligament syndrome

Patients with lateral thyrohyoid ligament syndrome present with lateralized cervical pain (which can last > 12 months) and odynophagia, with characteristic tenderness over the lateral thyrohyoid ligament axis, evidenced by wincing and withdrawal on palpation. A combination of steroid injections and local anesthetics is a viable and effective therapeutic option that reduces pain [13].

Nontraumatic thyroid cartilage fractures can cause neck pain and odynophagia. CT can confirm the diagnosis, and the disease can be treated using noninvasive methods, such as voice rest and steroids [14].

## Further considerations

Neck pain is a debilitating condition requiring treatment in rehabilitative settings. As highlighted in the previous sections, odynophagia and neck pain coexist under certain conditions. In such cases, diligent analysis of the clinical framework should be carried out to elucidate and corroborate the underlying pathology before planning the physiotherapeutic treatment. A multidisciplinary approach involving professionals most likely to be of help in the patient's non-rehabilitative treatment (radiologists, otolaryngologists, neurosurgeons, cardiac surgeons, vascular surgeons, and internal medicine physicians) could be an optimal approach before implementing rehabilitative therapies that may prove unnecessary. At the same time, physiotherapists are the professionals most likely to encounter individuals with neck pain and provide interventions such as massage, manual therapy, exercise, and electrotherapy [31]. Therefore, it is important to recognize that neck pain can stem from different clinical conditions requiring interventions in addition to or other than physiotherapy mandating the consideration of a differential diagnosis to ensure appropriate referrals for therapeutic interventions. Symptoms of neck pain can vary in intensity and duration, making it essential to identify underlying clinical conditions that are not musculoskeletal in nature or are not amenable to treatment using physiotherapeutic techniques.

## Notes

### Conflicts of interest

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