

Thyroid gland injury after blunt neck trauma: a case report

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ABSTRACT

Soft-tissue injuries are relatively common after blunt neck trauma. Due to neck content, several vital structures can be compromised. Isolated trauma to the thyroid is highly uncommon, and few cases are reported in the literature. A 61-year-old otherwise healthy woman sustained blunt trauma to the left frontal half of the neck caused by seatbelt injury in a motor vehicle accident. She presented with a painful anterior neck swelling associated with dyspnea. Computed tomography showed the left thyroid lobe lacerations with features suggestive of thyroid gland active bleeding. She underwent surgical exploration with left thyroidectomy and recovered uneventfully. Isolated thyroid gland injury is infrequent and is present in about 1–2% of the cases, and in most reported cases, there is an underlying pathology within the gland. Patients can be present with neck swelling, pain, respiratory distress, and dysphagia. Patients who sustained blunt neck trauma should be assessed and stabilized according to the ATLS® principles. Injury to vital structures should be ruled out first. Although these cases are rare, physicians should consider the possibility of thyroid injury after blunt neck trauma or neck swelling is noted.

Keywords: Blunt neck trauma; rupture; thyroid gland injury; thyroid.

INTRODUCTION

Soft-tissue injuries are relatively common after blunt neck trauma, due to neck content, several vital structures can be compromised. Thyroid injury secondary to blunt neck trauma is uncommon, and most occur in patients with preexisting conditions such as goiters. An isolated thyroid gland injury is infrequent and is present in about 1–2% of the cases.^[1,2] Common causes of thyroid injury include motor vehicle accidents and falls, although spontaneous thyroid hemorrhages have been reported following muscular effort from heavy lifting.^[3–5] Larynx, trachea, pharynx, esophagus, major blood vessels, and the spine can be compromised.^[6] Isolated trauma to the thyroid gland in this context is very uncommon. We report the case of a healthy female who suffered a thyroid gland rupture caused by seatbelt injury in a motor vehicle accident.

CASE REPORT

A 61-year-old otherwise healthy woman sustained blunt trauma to the left frontal half of the neck after a motor vehicle accident. She arrived at the emergency department complaining of severe neck swelling, bruise, and dyspnea associated with pain. The clinical examination revealed a palpable mass on the neck's left anterior aspect. No abrasions were observed, and no subcutaneous emphysema was palpable. Bilateral carotid pulses were regular, with no jugular congestion and no bruits. The rest of her physical examination was within normal parameters as well.

Subsequently, emergency tracheal intubation was performed to secure the airway. Neck plain X-ray showed tracheal deviation. Computed tomography scans showed low-density enlargement in the left lobe of the thyroid gland, thyroid injury

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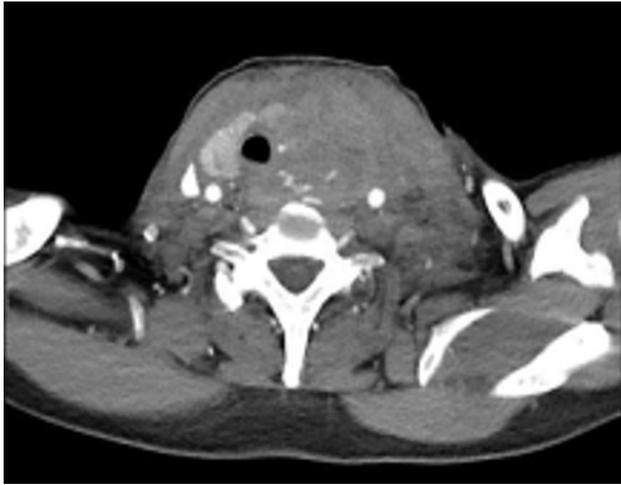


Figure 1. Computed tomography of the neck shows the rupture of the left lobe of thyroid gland, the large hematoma and the deviation of the trachea (sagittal view)



Figure 2. Computed tomography of the neck shows low-density enlargement in the left lobe of thyroid gland, thyroid injury with internal hemorrhage, swelling of left lateral neck (coronal view)

with internal hemorrhage, and swelling of the left lateral neck (Figures 1 and 2).

Therefore, the patient underwent emergency neck exploration with a Kocher incision followed by a left hemithyroidectomy. Intraoperatively, the left lobe of the thyroid gland was ruptured with active internal bleeding and a large amount of hematoma. In addition, both left superior, inferior parathyroid glands, and recurrent laryngeal nerve were identified and

preserved. The entire operation went uneventful, and the patient was transferred to the recovery unit.

The histopathological analysis of the resected lobe revealed parenchymal hemorrhage, hematoma formation, and focal necrosis with no underlying pathology. The patient's postoperative course was uncomplicated, and the result of follow-up thyroid function test was normal. She was discharged 9 days after surgery. The delayed discharge was due to postoperative atelectasis. The 1-month postoperative follow-up revealed normal thyroid function, consistent with the patient's full recovery.

DISCUSSION

Thyroid injury secondary to blunt neck trauma is rare, and most occur in patients with preexisting conditions such as goiters.^[1] Isolated thyroid gland injury is extremely uncommon and is present in about 1–2% of the cases.^[2] Although, most previous reports of thyroid gland rupture have described hemorrhages from a goiter, which tend to rupture because of its increased fragility, rich vascularity, and large size.^[7] However, in our report, we describe the rupture of a healthy thyroid gland without a goiter. Thus, thyroid gland injury needs to be considered even for patients without preexisting goiters after blunt neck trauma.

Perhaps the most broad literature review is published by von Ahnen et al.,^[8] which analyzes 36 case reports regarding rupture, hemorrhage, or hematoma due to blunt neck trauma. The patient age ranges between 13 and 82 years, with 21 women (58%) and 13 men examined. Histological abnormalities were discovered in 11 cases (80%) of the operated 13 cases. The left thyroid lobe was more likely to be involved, and 59% were treated with surgery. Different causes of thyroid injury have been described, including direct impact by car steering wheels or protection airbags, bicycle and motorcycle handlebars, and direct blow to the neck while falling from horses, staircases, or beds. Others present as a direct blow to the neck while practicing sports.

Symptoms of thyroid injury after blunt neck trauma can include neck swelling, respiratory distress, dysphagia, hoarseness of voice, and neck pain. Victims may be stable at the initial presentation, but later deterioration can lead to life-threatening symptoms. Furthermore, previous reported cases revealed that patients may present with severe dyspnea 24 h after the onset of the injury. Emergency intubation may not be needed in all circumstances; however, close observation is crucial as airway compression may develop later due to progressive hematoma or soft-tissue edema.^[3,7]

Considering the rare injury to the thyroid gland due to blunt trauma, no guidelines have been established on the management. Patients should be resuscitated according to advanced trauma life support® (ATLS ®) principles of the airway, breathing, and circulation management upon arrival^[9]

Conclusion

Without exception, patients that sustained blunt neck trauma should be assessed and stabilized according to the ATLS® principles. Injury to vital structures should be ruled out first. Although these cases are rare, physicians should consider the possibility of thyroid injury after blunt neck trauma or neck swelling is noted. Early detection and prompt treatment can reduce life-threatening complications.

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OLGU SUNUMU - ÖZ

Künt boyun travması sonrası tiroit bezi yaralanması: Bir olgu sunumu

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Künt boyun travmasından sonra yumuşak doku zedelenmeleri nispeten yaygındır. Boyun bölgesinin içeriğinden dolayı bu durum birçok hayati yapı için tehlike oluşturabilir. Tiroit üzerinde izole travma oldukça nadirdir ve literatürde çok az vaka rapor edilmiştir. Bir motorlu araç kazasında 61 yaşında normalde sağlıklı bir kadının boynunun sol ön yarısı, emniyet kemeri yaralanması nedeniyle künt travmaya maruz kaldı. Dispne ile ilişkili olacak şekilde boyun anteriorunda ağrılı bir şişlik olduğunu bildirdi. Bilgisayarlı tomografiden (BT) bakıldığında tiroit bezinde aktif bir kanamayı anımsatan özelliklerle birlikte sol tiroit lobunda yırtılmalar olduğu görüldü. Sol tiroidektomi ile cerrahi eksplorasyon yapıldı ve hasta sorunsuz bir şekilde iyileşti. İzole tiroit bezi yaralanması nadiren görülür ve vakaların yaklaşık %1-2'sinde mevcuttur. Ayrıca rapor edilen vakaların çoğunda bezin içerisinde vurgulanması gereken bir patoloji bulunmaktadır. Hastaların boyun kısmında şişlik, ağrı, solunum bozukluğu ve yutma güçlüğü olabilmektedir. Künt boyun travmasına maruz kalan hastalar ATLS® prensiplerine göre değerlendirilmeli ve stabil duruma getirilmelidir. Öncelikle hayati yapılarındaki yaralanmalar elenmelidir. Bu vakalar nadir olsa da, doktorlar künt boyun travmasından sonra ya da boyunda şişlik belirtilmişse tiroit yaralanması ihtimalini değerlendirmelidir.

Anahtar sözcükler: Künt boyun travması; rüptür; tiroit; tiroit bezi yaralanması.

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