

Penetrating Injury To Posterior Pharynx Causing Retropharyngeal Emphysema, Abscess Formation and Mediastinitis: Case Report

Retrofarengal Amfizeme, Abse Formasyonuna ve Mediastinite Neden Olan Posterior Farenks Delici Yaralanması: Olgu Sunumu

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ABSTRACT

Pharyngeal injuries caused by trauma are common and reported previously in the medical literature. In some cases of a penetrating injury there is a collection of air in the retropharyngeal space that can be shown on lateral soft tissue radiography of the neck. If this condition is misdiagnosed or not treated, patients may develop severe and fatal complications such as mediastinitis. A case of a diabetic patient with unregulated blood glucose level and penetrating injury caused by a bony meat and followed by formation of retropharyngeal emphysema, abscess and mediastinitis, is reported. This fatal, life threatening complication is taken under control with surgical drainage, medical therapy and regulation of blood glucose level and the approach to these complications is discussed.

Keywords

Soft tissue injuries; pharynx; retropharyngeal abscess; injuries; wounds and injuries

ÖZET

Travma sonucu oluşan farenks yaralanmaları yaygın olup medikal literatürde eskiden beri yayınlanmaktadır. Bazı delici yaralanma olgularında, retrofarengal alandaki hava birikimi yan boyun yumuşak doku grafisinde gösterilmiştir. Bu durumun tanısı konamaz ve yeterli tedavi edilmezse hastada mediastinit gibi ciddi ve ölümcül komplikasyonlar gelişebilir. Bu çalışmada kan şekeri regüle olmayan diabetik hastada kemikli et nedeniyle oluşan delici yaralanma ve sonrasında gelişen retrofarengal hava kolleksiyonu, abse formasyonu ve mediastinit değerlendirilmiştir. Ciddi şekilde yaşamı tehdit eden bu komplikasyon cerrahi drenaj, IV medikal tedavi ve kan şekeri regülasyonundan sonra kontrol altına alınmış ve bu komplikasyonlara yaklaşım tartışılmıştır.

Anahtar Sözcükler

Yumuşak doku yaralanması; farenks; retrofarengal abse; yaralanma; yaralanma

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INTRODUCTION

Palatopharyngeal injuries secondary to impaction of rigid objects are common. An injury to retropharyngeal space which lies from skull base to T1, T2 vertebrae, posterior to buccopharyngeal fascia and anterior to alar layer of deep fascia is very important because an abscess of this space may lead to life threatening conditions like mediastinitis. Inspection of the oral cavity and oropharynx may reveal no apparent findings or perhaps minor bruising or frank laceration may be visible. Serious complications, however, have been occasionally reported following these apparently benign injuries. Such complications include internal carotid artery injury, retropharyngeal abscess and mediastinal infection. The latter two complications occur as a result of perforation of the pharyngeal wall. However, occult perforation may occur in the absence of any obvious clinical signs and perforation may only be detected by the radiological demonstration of retropharyngeal emphysema or pneumomediastinum.¹ We report a case in which occult pharyngeal perforation occurred and only radiological investigation alerted to this potentially serious complication.

CASE REPORT

57 years old male patient with 20 years of diabetes mellitus history was admitted to the department of otolaryngology after referral by the emergency unit at Haydarpaşa State Hospital for Research and Training. He described a penetrating injury to his posterior pharynx while eating bony meat three days ago. The bony object penetrated his posterior pharynx on the right side. He complained about pain in his mouth and along his right neck. He also complained of severe odynophagia for three days. His temperature was 38.5°C, heart rate was 84 beats/min, respiratory rate was 16 breaths/min, blood pressure was 130/85 mm/hg. Oropharyngeal examination revealed no evidence of a laceration or puncture wound in the mouth or oropharynx but there was a swelling in his posterior pharyngeal wall. There was no associated submandibular or cervical lymphadenopathy. His neck was stiff and he had palpable crepitus on his neck. Breath sounds were clear and equal bilaterally. Cardiac, abdominal and other physical examinations were within normal limits. A direct cervical radiography was ordered. Although the lateral cervical X-ray showed a normal epiglottis, we could demonstrate air in the retropharyngeal space without edema (Figure 1).



Figure 1. Lateral cervical X-ray: retropharyngeal air collection.

Chest radiographs were normal and did not show the presence of a pneumothorax or pneumomediastinum. Further laboratory tests demonstrated a white blood cell count of 25800 cells per cubic millimeter (87% segmented neutrophils and 4% lymphocytes), hemoglobin of 14.6 g/dL, hematocrit of 43.1%, and a platelet count of 325,000 per cubic millimeter. C-reactive protein was 21.2 mg/dL, blood glucose level was 450 and electrolytes were within normal limits. Then his indirect laryngeal examination was done which revealed no pathological findings except hyperemic epiglottis.

A neck ultrasonography showed as 6-7cm retropharyngeal air collection with probable diagnosis of deep neck infection or retropharyngeal abscess formation. We admitted to the ward and treatment started with intravenous fluids and antibiotics (cephtriaxon and metronidazole). The following day we decided for immediate surgical exploration rather than additional radiographs or computed tomography scan of the neck. In the operating room, the retropharyngeal space was dissected to the level of the prevertebral fascia. We encountered no apparent purulent material, there was only air leakage. The patient is transferred to the intensive care unit because of postoperative respiratory distress

and low O₂ saturation level.

As the septic status of patient did not get well, we ordered cervical neck and thorax CT (Figure 2, 3). The tomographies showed purulent material and air collection between retropharyngeal space and inferior mediastinum and left pulmonary inferior lobe infiltration. We transferred the patient to the Thorax Surgery Department with the diagnosis of mediastinitis and bronchoscopy was ordered. After his medical therapy and blood glucose regulation, odynophagia minimalised and oral feeding restarted. As his vital signs became well, he was discharged.

DISCUSSION

Perforation of the pharynx is a relatively uncommon condition. Most frequently it is reported as a consequence of iatrogenic instrumentation, either endoscopic examination² or less commonly endotracheal intubation.³ Less common causes reported include blunt trauma to the neck and penetrating neck injury.⁴ There are also reports of retropharyngeal air collection after dental procedures.^{5,6} This has been attributed to extraction of teeth and the use of compressed air in dental drills and syringes. Retropharyngeal air accumulation can also be spontaneous and it has been reported in patients suffering from asthma.⁷ Occult perforation may occur in the absence of any obvious clinical signs. Lateral soft tissue radiographs are invaluable in diagnosing retropharyngeal air accumulation and soft tissue swelling. Such radiographs should be performed routinely in all clinical cases as the perforation may be oth-

erwise undetectable by physical examination alone.⁸ Serious complications of pharyngeal perforation include retropharyngeal and parapharyngeal abscess and mediastinitis.^{9,10}

Oral cavity and oropharyngeal injuries secondary to impaction of a rigid object in the mouth are relatively common particularly in emergency departments. There has been a particular interest in these injuries recently in the literature as a result of a number of case reports of internal carotid artery thrombosis following these injuries.¹¹ Although some of the larger series published recently¹² did not report a significant incidence of pharyngeal perforation (one pneumomediastinum out of a combined total of 208 patients), a paper by Kosaki et al.¹³ reported 12 penetrating injuries of the oropharynx with one case of retropharyngeal emphysema, one case with retropharyngeal emphysema and pneumomediastinum and one case of retropharyngeal abscess with mediastinitis. All of their patients had evidence on examination, of laceration or puncture to the wall of the pharynx. In contrast, our case had innocuous looking injuries with no clinical evidence of significant injury. The lateral soft tissue neck X-ray however confirmed the diagnosis. Dolgin et al.² emphasize the importance of early diagnosis of pharyngeal or esophageal perforations as early introduction of prophylactic antibiotics reduces the incidence of septic complication and surgical intervention.

In our opinion main subject of this case is that, conditions causing immune suppression such as unregulated blood sugar are the most important predisposing factors for retropharyngeal emphysema, abscess formation and

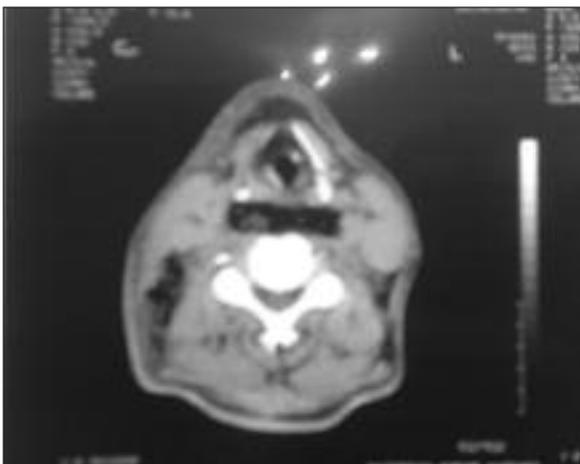


Figure 2. Cervical neck CT scan (axial):retropharyngeal air collection.

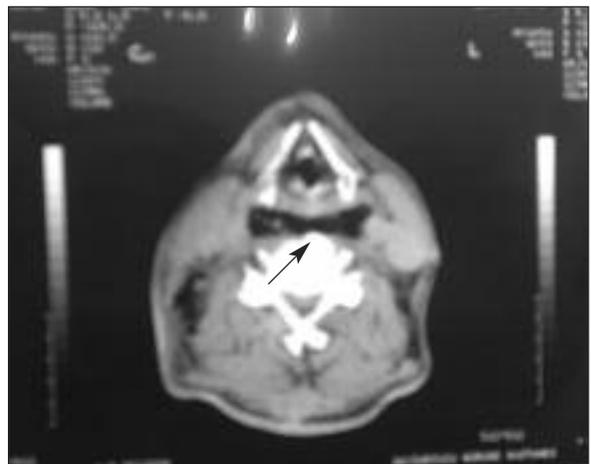


Figure 3. Cervical neck CT scan (axial):retropharyngeal air collection

mediastinitis. Unregulated blood sugar in diabetic patients promotes abscess formation to go further more such as mediastinitis. Such a widespread infection may not be caused if the patient has a regulated blood sugar. As a matter of fact improvement of general status and regulation of blood glucose level limited the disease.¹⁴

It is noteworthy that these injuries tend to be seen initially by general practitioners who traditionally only tend to refer on those cases in which a definite laceration or puncture wound is present due to concern that the wound may need to be explored or sutured. In our case it was fortuitous that the lateral soft tissue neck X-ray was performed to rule out foreign body or a cervical

spine injury; in addition to show the presence of retropharyngeal air.

As a result, oropharyngeal injuries may lead to fatal complications in patients with bad general status and distorted immunity.¹⁴ We would therefore suggest that otolaryngologists educate general practitioners about the potential complications of these injuries and highlight the importance of performing lateral and AP soft tissue neck X-rays to look for the presence of retropharyngeal emphysema and if this is present proceed to PA and lateral chest X-ray to rule out pneumomediastinum.

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