

**CASE REPORT**

## **Retropharyngeal cellulitis complicated by cervical spondylodiscitis: A case report**

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### **ABSTRACT**

Secondary to pharyngeal trauma such as endotracheal intubation, endoscopy and after foreign body ingestion, or removal may develop retropharyngeal cellulitis in adults. These infections occur mainly in children between 1 to 8 years of age with 75% of cases occurring before the age of 5 years. Retropharyngeal cellulitis is a serious deep space infection which can extend from neck to the mediastinum.

Herein, we represent a case of 24-year-old female patient who presented with neck pain, odynophagia, and malaise two months after accidental ingestion of a little pin. Uncomplicated removal of this pin was followed by development of retropharyngeal cellulitis and cervical spondylodiscitis. The patient was successfully treated with intravenous and oral antibiotics for 12 weeks without need to surgical intervention.

We believe that early and aggressive medical treatment can eradicate nonsuppurative complicated retropharyngeal infection without the need for surgery. *J Microbiol Infect Dis* 2015;5(4): 180-183

**Key words:** Pharyngeal trauma, cervical spondylodiscitis, cellulitis

## **Retrofaringeal sellülit komplikasyonu olarak gelişen servikal spondilodiskit: Bir olgu sunumu**

### **ÖZET**

Erişkinlerde endotrakeal entübasyon, endoskopi, yabancı cisim yutulması ve yabancı cismin çıkarılma işlemi esnasında oluşan faringeal travmaya sekonder olarak retrofaringeal sellülit gelişebilir. Bu enfeksiyonlar, esasen 1-8 yaş arası çocuklarda görülmekle birlikte % 75'i beş yaşın altında görülür. Retrofaringeal sellülit, boyundan mediastene uzanabilen çok ciddi bir derin boşluk alanı enfeksiyonudur.

Bu yazıda, kaza ile toplu iğne yuttuktan 2 ay sonra boyun ağrısı, ağırlı yutma ve halsizlik şikayeti ile başvuran 24 yaşında kadın hasta sunuldu. Hastada iğne, komplikasyon gelişmeden çıkarıldıktan sonra retrofaringeal sellülit ve servikal spondilodiskit gelişti. Hasta, cerrahi girişim gerekmeden 12 hafta süreyle intravenöz ve oral antibiyoterapi ile başarılı bir şekilde tedavi edildi.

Sonuç olarak, apseleşmemiş komplike retrofaringeal enfeksiyonun, cerrahi girişim gerekmeden erken ve agresif medikal tedavi ile iyileşebileceğini düşünmekteyiz.

**Anahtar kelimeler:** Faringeal travma, servikal spondilodiskit, sellülit

### **INTRODUCTION**

Secondary to pharyngeal trauma such as endotracheal intubation, endoscopy and after foreign body ingestion or removal may develop retropharyngeal cellulitis in adults. Further, primer common causes

of retropharyngeal cellulitis in adults are Pott's disease of cervical vertebrae and hematogenous route.<sup>1,2</sup> These infections occur mainly in children between 1 and 8 years of age with 75% of cases occurring before the age of 5 years. This is likely due to prominent retropharyngeal nodal tissue and

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it is associated with frequency of middle ear and nasopharyngeal infections.<sup>1,2</sup> Retropharyngeal cellulitis/abscess is a potentially life threatening infection involving the retropharyngeal space which generally develops secondary to lymphatic drainage or contiguous spread of infection located on the upper respiratory tract or oral mucosa.<sup>3</sup> Pathogens of vertebral spondylodiscitis can reach the bones of the spine primarily by hematogenous spread from a distant site of infection but contiguous spread from adjacent soft tissue infection can occur. When recognized early it responds favorably to proper antibiotic therapy and its progress to retropharyngeal abscess is prevented.<sup>4</sup>

Here, we report an adult case presenting with retropharyngeal cellulitis complicated by cervical spondylodiscitis which was developed after removal of a foreign body stuck in the throat.

### CASE PRESENTATION

A 24-year-old female patient admitted to our hospital with a two months long history of progressive neck pain, odynophagia, and malaise after removal of a little pin (that was accidentally swallowed) from posterior pharyngeal wall. After removal of the pin, she had been treated with an oral beta lactam antibiotic and analgesic for one week in a different institution. Her complaints began two weeks after discontinuation of antimicrobial treatment and increasingly progressed over time. In admission to our outpatient to infectious disease clinic she had a body temperature of 37.5°C, posterior pharyngeal edema, cervical lymphadenopathy, severe neck pain and restricted neck movements without nuchal rigidity. Neurologic examination of patient was normal. Laboratory tests revealed normal erythrocyte sedimentation rate (ESR) and leukocyte count. The level of C-reactive protein (CRP) was mildly elevated (16.7 mg/dl, normal range: < 10 mg/dl) and biochemical evaluations were normal.

X-ray of cervical spine showed loss of intervertebral space between C2-3 and retropharyngeal soft tissue shadow. Chest X-ray was normal. Magnetic resonance imaging (MRI) of cervical spine was compatible with retropharyngeal cellulitis and C2-C3 spondylodiscitis (Figure 1). Jugular vein doppler ultrasonography was found to be normal.





**Figure 2.** T-2 weighted with fat suppression sagittal cervical MRI shows that retropharyngeal abscess and spondylodiscitis findings disappeared 3 months after the treatment

## DISCUSSION

Retropharyngeal cellulitis is among the most serious deep space infections, since infection can extend into the anterior or posterior regions of the superior mediastinum, or into the posterior mediastinum via the danger space.<sup>2</sup> In adults, retropharyngeal cellulitis formation is a rare event and usually follows tubercular suppuration of cervical vertebrae or penetrating trauma (eg, from chicken or fish bones or following instrumentation).<sup>5</sup>

Presentation is variable, children may present with odynophagia, dysphagia, fever, cervical lymphadenopathy, nuchal rigidity, stridor, dyspnea, snoring or noisy breathing, and torticollis. Adults may have severe neck pain but less often have stridor. The posterior pharyngeal wall may bulge to one side.<sup>1</sup> Our case presented with severe neck pain, odynophagia, malaise, low grade fever, posterior pharyngeal edema, cervical lymphadenopathy and restricted neck movements.

In retropharyngeal cellulitis patients may present with complications resulting from extension of the infection to adjacent spaces such as posterior extension to pre-vertebral space, discitis, osteomyelitis and epidural abscess.<sup>6</sup> These complications can be prevented by prompt access to imaging technics and initiating appropriate antibiotic therapy. In this case, there was posterior extension of infection leading to cervical spondylodiscitis. We thought that inadequate duration of outpatient antimicrobial treatment and follow-up may be the leading cause

of progression of infection. In such cases, the most common symptom is worsening back or neck pain that increases with movement. Septic fever, motor or sensory changes due to compression of the nerve roots or spinal cord may occur if the condition is not treated promptly.<sup>5,6</sup> Our patient had a progressive neck pain and restricted neck movements in two months period after removal of foreign body but we can't detect any sensory-motor deficit in her. Laboratory findings in spondylodiscitis are raised ESR, leucocytosis, increased C-reactive protein (CRP), and left shift in the leucocytes, positive blood cultures may be seen.<sup>6,7</sup> There was an increase in CRP level in our patient but blood cultures were negative.

The most common organisms causing retropharyngeal infections (cellulitis and abscess) include gram positive aerobes and anaerobes; also gram negative organisms may be observed resulting frequently observed mixed flora pattern in cultures.<sup>1,5</sup> Organisms, such as methicillin resistant *Staphylococcus aureus* and facultative Gram-negative rods, including *Pseudomonas aeruginosa* and extended-spectrum beta-lactamase (ESBL)-producing Enterobacteriaceae, may be present, particularly in patients with risk factors such as immunodeficiency, diabetes mellitus, postoperative infection, or trauma.<sup>8</sup> In our patient fine needle aspiration of retropharyngeal wall was dry so we can't obtain any material for microbiological examination.

Diagnosis of retropharyngeal abscess/cellulitis is easily made by direct radiography and computed tomography (CT) or MRI. These tests also are useful in assessing the extent of abscess beside diagnosis.<sup>3</sup> The basic diagnostic examinations to establish spondylodiscitis are the MRI and biopsy, with microbiological documentation of infection.<sup>9,10</sup> Because our patient was in pre-suppurative phase of the infection, needle aspiration didn't yield any microbiologic diagnosis, however MRI of cervical spine was compatible with retropharyngeal cellulitis and extension of infection to C2-C3 vertebra and intervertebral discus.

Early recognition and aggressive management of these infections are essential because they are associated with significant morbidity and mortality.<sup>1</sup> Radical surgical intervention for debridement and decompression to stabilize the spine in conjunction with several weeks of intravenous antibiotics ( $\geq 12$  weeks) may be required in the case of cervical spondylodiscitis secondary to pharyngeal trauma.<sup>1</sup> In infections originated from orofacial space the initial antimicrobial agents of choice in normal hosts are metronidazole plus penicillin, combination of

$\beta$ -lactam and  $\beta$ -lactamase inhibitors or clindamycin. In patients at risk for rapidly spreading infection such as immunocompromised hosts or in whom resistant pathogens is suspected, antibiotic regimen must be broad-spectrum and bactericidal in appropriate dose (eg, ampicillin-sulbactam, piperacillin-tazobactam or a carbapenem).<sup>1</sup> In our patient, because of a history of intervention for removal of foreign body from retropharynx and progression of infection under outpatient  $\beta$ -lactam antibiotic treatment, we decided to apply a broad-spectrum antimicrobial combination therapy to cover all of the potential microorganisms.

In retropharyngeal infections mortality may occur as a result of airway obstruction, mediastinitis, aspiration pneumonia, epidural abscess, jugular vein thrombosis, necrotizing fasciitis, septicemia with multi-organ failure and erosion into the carotid artery.<sup>1,3,11</sup> Overall mortality rate of retropharyngeal abscess was reported as 1% in a review from Taiwan.<sup>2</sup> In a study from Germany including a total of 234 adult patients with deep space infection of the neck, the mortality rate was found to be 2.6%.<sup>11</sup>

Our patient was in uncommon age group for retropharyngeal cellulitis (24 year-old) in whom infectious process progressed to cervical spondylodiscitis without suppuration and abscess formation. The infection responded to prompt and aggressive long term combination antimicrobial treatment without need to surgical intervention, and without obvious morbidity.

In conclusion, in the case of pharyngeal trauma, physicians should be aware of the possibility of local complications such as retropharyngeal infections and extension to contiguous anatomic struc-

tures. In this case, we observed that early and aggressive medical treatment can eradicate the non-suppurative retropharyngeal infection complicated by spondylodiscitis without the need for surgery.

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