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for young doctors

Case Report

RETROPHARYNGEAL ABSCESS FROM FISHBONE IN ADULT IMMUNOCOMPETENT HOST PRESENTING AS ACUTE THYROIDITIS

Andrea Attard [1], Girolamo Geraci [1], Vincenzo Santoro [1], Giuseppe Modica [1], Marco Attard [2], Saverio Ferrauto [3], Riccardo Speciale [4], Donatella Marchese [4]

Summary

Retropharyngeal abscesses (RPA) are rare in adults. We report a case of a healthy adult with RPA presenting with clinical symptoms of acute thyroiditis.

A 37-yr-old female presented with a painful mass in the anterior region of the neck, sore throat, mild fever and dysphagy for liquids and solids. Neck emergency US disclosed normal thyroid ventrally displaced by a huge retropharyngeal hypoechoic mass. Direct laryngoscopy revealed erythema of the posterior pharyngeal wall with bulges (8 cm) preventing the correct visualization of the glottic plane. CT confirmed the presence of retropharyngeal abscess and laryngoscopic drainage was performed. The patient was discharged on 11th post-operative day, in good condition. The high mortality rate of retropharyngeal abscess is related to its association with invasion of contiguous structures and mediastinum: once mediastinitis occurs, mortality reaches 50%, even with antibiotic therapy. CT is fundamental for the diagnosis, but in many cases, as our, ultrasonography of the neck may play a pivotal role as quickly as possible. Surgical treatment (intraoral incision and drainage) is the better definitive and resolutive treatment. The clinical diagnosis of retropharyngeal abscess in adult can be difficult because of the lacking and non specificity of clinical presentation.

It is recommended to collect accurate clinical history, careful examination of the head and neck and use of early ultrasound examination of the neck, which in real time can give precise indications to guide the diagnosis and therapy.

The management of a retropharyngeal abscess depends on the patient's clinical condition, moving from conservative treatment with steroids and antibiotics to reanimation and aggressive surgical drainage.

Introduction

Retropharyngeal abscesses (RPA) are rare in adults. They occur mostly in immunocompromised patients or as a foreign body complication and they pose a diagnostic challenge for the emergency physician because of its infrequent occurrence and vari-

Address of the authors:

[1]School of Medicine of Palermo – Section of General and Thoracic Surgery

[2] Ospedali Riuniti Villa Sofia – Cervello – Section of Endocrinology

[3] Civico and Benefratelli Hospital of Palermo – Section of Otolaryngology ENT Unit,

[4] Department of Biomedicine and Clinical Neurosciences, University of Palermo, Via del Vespro 133, Palermo, Italy

Send correspondence to: *Donatella Marchese, marchesedonatella@hotmail.com*

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able presentation.
We report a case of a 37-yr-old otherwise healthy adult with RPA presenting with clinical symptoms of acute thyroiditis, collected in the Emergency Department of School of Medicine of Palermo.

Case Report
In 2008, a 37-yr-old female was accepted to the emergency department of Civico Hospital in Palermo, with a painful mass in the anterior region of the neck, complaining a 12 hours history of increasing sore throat pain, and a mild fever (37.8°c) from 5 days. The patient was dysphagic for liquids and solids, with a soft dyspnea, asthenic and dehydrated. She took oral antibiotics without any benefit from 3 days.Her past medical history was indicative of thyroid hyperplasia with normal function and positive family history for thyroid disease. No history of diabetes. She wasn't a chronic alcoholic or smoker.
The patient experienced nausea, but denied vomiting and diarrhea. She also denied previous history of streptococcal pharyngitis, tonsillitis, recent dental work, intraoral or extraoral trauma, toothache.
At physical examination she had a few palpable painful tender cervical nodes, mostly on the left side of the neck (all were less than 15 mm in diameter). The neck was supple with normochromic skin. Examination of the lungs, heart, and abdomen were normal.
Neck emergency ultrasonography disclosed a normal thyroid in shape, texture, volume and vascularization, ventrally displaced by a huge retropharyngeal well-defined hypoechoic mass with retrosternal prolongation (figure 1). After many hours and various questions, the patient revealed an important detail: about 10 days before clinical presentation, she swallowed a fishbone, followed by painful deglutition.
Therefore an otolaryngology analysis was necessary: examination of the oropharynx revealed normal palatine tonsils, no trismus, erythema of the posterior pharyngeal wall with smooth surface visible bulges (8 cm). At the larynx endoscopy, such mass prevented the correct visualization of the vocal folds, the only sites investigated were the base of tongue and the epiglottis which appeared normal.
Hematological assessment revealed increased white blood cell (19.14 x 10^3/ml) with neutrophilia (96.0%).
Neck CT revealed the presence of a retropharyngeal abscess (30.7 x 33.7 x 81.39 mm), extended up to the superior thoracic outlet and the anterior displace-

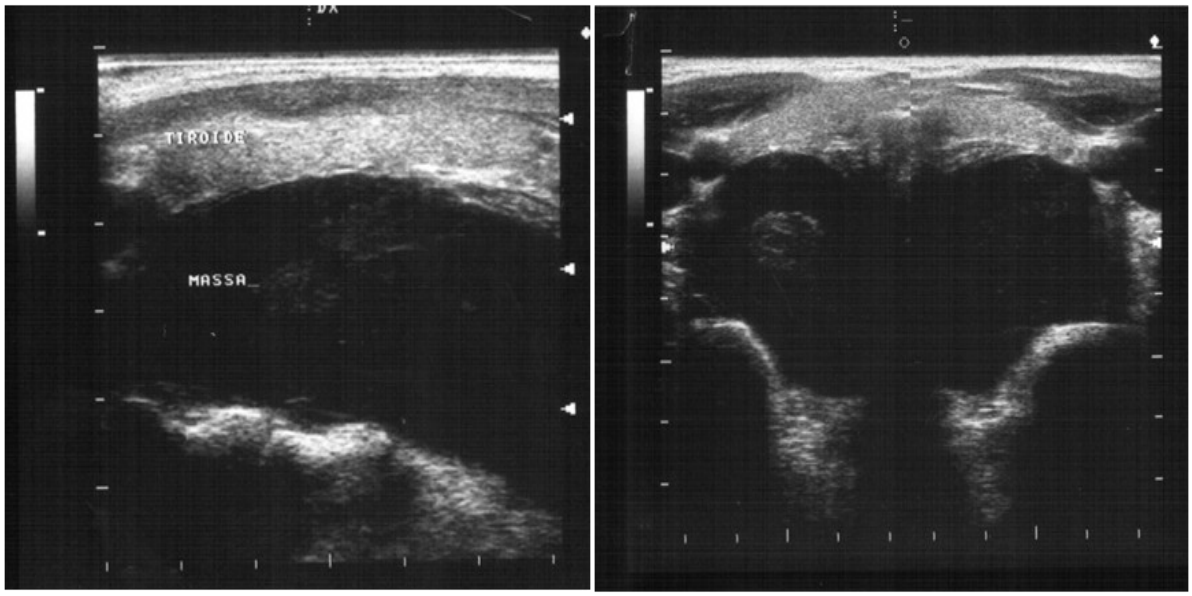

Figure 1. Neck ultrasonography with RPA and thyroid ventrally displaced by a huge well-defined hypoechoic mass

ment of thyroid with narrowing respiratory space (figure 2).

Due to the progressive dyspnea and obstruction of the glottic plane, the patient received Ventimask with 31% Orange Venturi (6 litres/minute), methylprednisolone 30 mg/kg iv repeated every 6 hours and triple antibiotic therapy with piperacilline plus tazobactam 2 gr iv, metronidazole 500 mg and clindamicine 600 mg iv. With the diagnosis of retropharyngeal abscess, the patient needed the airway securing as a result of respiratory distress and was finally submitted to nasotracheal intubation with fiberscope.

The surgical drainage of abscess was performed through with intraoral incision in direct laryngoscope under general anesthesia and 150 ml of pus were drained; then, lavage of the retropharyngeal space with gentamicin was performed. Tracheostomy was not necessary.

Operative pus cultures showed growth of a single microorganism, *Bacteroides uniformis*, sensitive to piperacilline plus tazobactam and metronidazole but resistant to clindamicine.

One day after surgery, nasotracheal tube was replaced with orotracheal tube 8.

Successive endoscopic surveillance through the endotracheal tube and neck CT confirmed the gradual reduction of edema and bulging reduction of the posterior wall of pharynx, up to fifth post-procedure day, when the patient was extubated under direct laryngoscopic guide (normal breathing space in the trachea and larynx) and the successive transnasal fiberscopy confirmed normal pharynx and trachea with a little erythematous bulge (< 1 cm).

Clinical resolution of the RPA was observed at 11th post-operative day, then the patient was discharged and was followed for six months, without evidence of recurrence.

Hematological assessment revealed normal white blood cell (7.14 x 10^3/ml) with normal formula.

Cervical CT (after six months) confirmed complete resolution of RPA with moderate fibrosis in correspondence of previous

Figure 2. Neck CT with fluid collection of RPA and substernal prolongation

bulging (figure 3).

Discussion

The retropharyngeal space is posterior to the pharynx, bound by the buccopharyngeal fascia anteriorly, the prevertebral fascia posteriorly, and the carotid sheaths laterally. It extends superiorly to the base of the skull and inferiorly to the mediastinum.

Abscesses in this space can be caused by aerobic organisms (beta-hemolytic streptococci and *Staphylococcus aureus*), anaerobic organisms, such as species of *Bacteroides* and *Veillonella* and Gram-negative organisms, such as *Haemophilus parainfluenzae and Bartonella henselae* [1,2].

RPA occurs less commonly today than in the past because of the widespread use of antibiotics for suppurative upper respiratory infections.

RPA etiology is classified as traumatic or not. The traumatic one usually develops after iatrogenic injury as endotracheal intubation and endoscopy or after ingestion of a foreign body such as a fish bone. Non-traumatic RPA has been mainly reported in infants because a complication due to infection of retropharyngeal lymph nodes, usually disappeared after age 4 or 5 years. However now it is being encountered with increasing frequency in adults, usually secondary to chronic TBC cervical spine osteomyelitis, or in patients with diabetes mellitus, immunodeficiency, and patients undergoing maintenance hemodialysis. [4] Indeed, a review of adults with deep space infections of the neck in Germany revealed a mean age of 44.5±21.8 years [2] and a 10-year review at Kings County Hospital in Brooklyn, New York, revealed that only 30% of the cases involved pediatric patients aged 16 months to 8 years, whereas in most cases, about 70% were in adults aged 21-64 years [3].

The high mortality rate of retropharyngeal abscess is related to its association with invasion of contiguous structures, causing airway obstruction, mediastinitis, aspiration pneumonia, epidural abscess, jugular venous thrombosis, necrotizing fasciitis, sepsis, and erosion into the carotid artery.

Once mediastinitis occurs, mortality

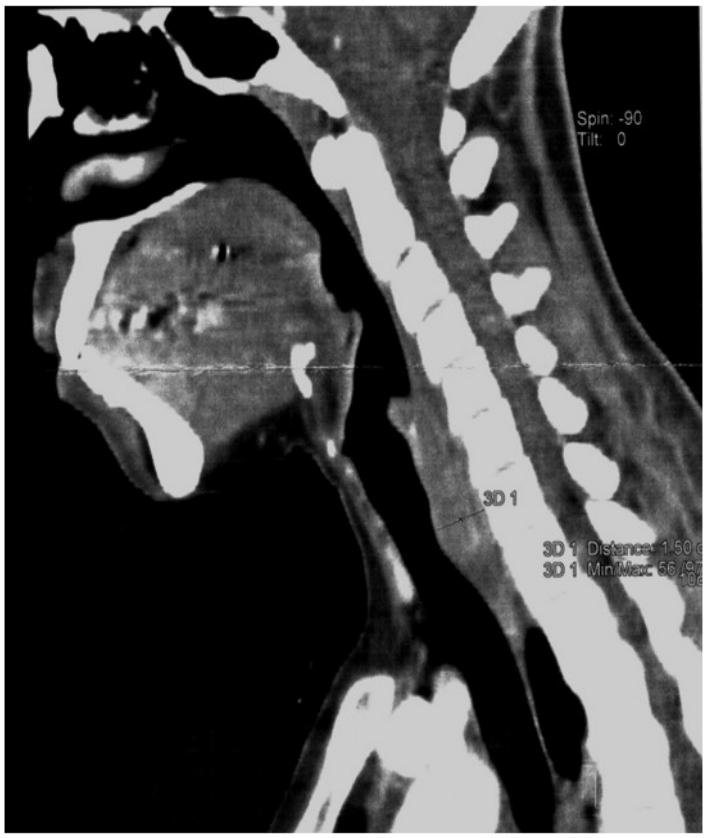

Figure 3. Neck CT with resolution of RPA

reaches 50%, even with antibiotic therapy. In addition, RPA can cause generalized sepsis.

Overall mortality rate was 1% in a review of deep cervical space infections in Taiwan [1]; moreover, in a German study of adults with deep space infections of the neck, the mortality rate was 2.6%. The described cause of death was primarily sepsis with multiorgan failure [2].

RPA is more common in males than in females, with generally reported male preponderance of 53-55%.

The clinical diagnosis can be difficult; the clinical symptoms are variable and nonspecific. The signs of infection may be lacking in certain situations of immune suppression such as diabetes [4].

The principal symptoms in adults, if present, are sore throat (17%), fever (17%), dysphagia (30%), odynophagia (40%), neck pain (38%), dyspnea (5%) and respiratory distress or stridor (5%) [5]. Patients with RPA may present signs of airway obstruction, but often they do not. The most common physical presentation is posterior pharyngeal oedema (37%), nuchal rigidity, cervical adenopathy, drooling, and stridor [3].

Various head and neck diseases including meninigitis and encephalitis are in the differential diagnosis [4].

Laboratory studies may show a nonspecific leukocytosis [5].

Although a lateral X Ray is unable to definitively demonstrate the presence of RPA, this is very specific when the air sign is present. Laryngoscopic examination may not always be useful for diagnosis, except for injuries of pharyngeal mucosa with edema, that is not a specific sign[4].

CT contributes greatly to the diagnosis, but it has limitations in differentiating abscess from cellulitis of the retropharyngeal space, it is also useful to for determining th vascular structures of the neck and their potential envolvment [4]; in many cases, as our, ultrasonography of the neck may play a pivotal role in diagnosis [6].

In nonspecific RPA, antibiotic therapy alone may be insufficient, and most authors recommend combining it with a surgical drainage [3]; the management of a retropharyngeal abscess depends on the patient's clinical condition. All patients require initial attention to establishing and maintaining a secure airway. In terms of definitive treatment, patients with significant airway involvement or mass effect clearly benefit from surgery (intraoral incision and drainage) and systemic antibiotic at the same time [3,5]. In case of poor general condition patient is suggested the use of imaging-guided aspiration or catheter insertion, and a local antibiotic lavage to prevent dissemination; whereas mild cases should be managed medically with IV antibiotics and corticosteroids without surgical intervention [7].

Conclusion

In conclusion, the clinical diagnosis of RPA in adult can be difficult: the clinical symptoms are variable and nonspecific; moreover, the signs of infection may be lacking in situations of immune suppression among adults.

We recommend to collect accurate clinical history, careful examination of the head and neck and use of early ultrasound examination of the neck, which in real time can give precise indications to guide the diagnosis and therapy.

The essential treatment principles require stabilization of airway, resuscitation if septic, initiation of judicious empirical antibiotics, and consultation with an otolaryngology specialist.

These patients may require admission for an initial period of IV antibiotics and airway observation, at a minimum, to surgical drainage for larger, purulent collections.

These procedures will help in reducing the RPA morbidity and its mortality.

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