



GLOBAL JOURNAL OF ADVANCED RESEARCH  
(Scholarly Peer Review Publishing System)

# INTERNAL JUGULAR THROMBOSIS BY OROPHARYNGEAL INFECTIONS – REPORT OF TWO CASES

## **Marcela de Oliveira**

Hospital Universitário São Francisco  
de Assis, São Paulo,  
Brazil  
[marcela.oliveira@gmail.com](mailto:marcela.oliveira@gmail.com)

## **Sulene Pirana**

Hospital Universitário São Francisco  
de Assis, São Paulo,  
Brazil  
[sulenepirana@gmail.com](mailto:sulenepirana@gmail.com)

## **Fabiana C. Pissini**

Hospital Universitário São Francisco  
de Assis, São Paulo,  
Brazil  
[fabipissini@hotmail.com](mailto:fabipissini@hotmail.com)

## **Daniele Ferreira dos Santos**

Hospital Universitário São Francisco de Assis,  
São Paulo,  
Brazil  
[daniele\\_ferreira@hotmail.com](mailto:daniele_ferreira@hotmail.com)

## **Gabriel Zorron Cavalcanti**

Hospital Universitário São Francisco de Assis,  
São Paulo,  
Brazil  
[gabrielzorron@gmail.com](mailto:gabrielzorron@gmail.com)

## **ABSTRACT**

Internal jugular thrombosis is uncommon pathology, but of great magnitude and with deadly complications. Its treatment consists in antibiotic therapy, for resolution of the casual factor, and the controversial use of anticoagulation.

Oropharyngeal infections are noteworthy because of their high incidence and the risk of complications that, although infrequent, may lead to death. They vary from well-located infections, requiring minimal antibiotic therapy treatment to severe infections with abscesses and complicating with jugular vein thrombosis.

The first report describes a case of odontogenic cervical abscess evolving to left internal jugular thrombosis, requiring surgical drainage and clinical treatment for suitable evolution. The second report describes a case of peritonsillar cervical abscess evolving to right internal jugular thrombosis.

In the reported cases, evolution was favorable with the introduction of suitable therapy.

**General Terms:** Diagnosis, treatment, oropharyngeal infections, internal jugular thrombosis

**Keywords:** Cervical abscess, internal jugular thrombosis, oropharyngeal infections

## **1. INTRODUCTION**

Deep cervical infections can result in severe complications such as descendant mediastinitis, jugular vein thrombosis, cavernous sinus thrombosis, and respiratory obstruction. They have several etiologies, and the main ones are pharyngotonsillitis and odontogenic [1].



Odontogenic infections are of great clinical importance, both because of their high incidence and because of their risk of complications that, although infrequent, may lead to death. There is predilection in male incidence in the third decade of life [2]. They may range from well-localized infections, which represent the majority of cases that demand only minimal antibiotic therapy to severe infections in fascial spaces. The later require hospitalization, antibiotic therapy, surgical drainage and multidisciplinary follow-up [3].

Tonsillitis in situations in which treatment is inadequate may evolve to a not very uncommon complication, which is the peritonsillar abscess, which represents a collection of purulent secretion on the soft palate, in the supratonsillar region, loose tissue between the tonsil and the muscle wall. This abscess may also evolve with deep neck infections [4].

This report describes cases of internal jugular thrombosis in one patient with odontogenic cervical abscess, and in another patient with peritonsillar abscess.

## 2. FIRST CASE REPORT

M.F.R, female, 23 years old, with a history of oropharyngeal pain for 10 days, using ceftriaxone and clindamycin. It evolved with edema and sharp pain at the right mandibular angle. She sought care again, and it was identified an odontogenic cervical abscess from the 1<sup>st</sup> and 2<sup>nd</sup> right lower molars. It was performed drainage at the services of origin through three incisions along the mandibular region on the right, with exit of purulent secretion in large quantity.

Computerized tomography (CT scan) of the neck (figure 1) evidenced edema of the planes related to the right parotid with extension to the piriform sinus and Para-pharyngeal space suggesting abscess. The patient was referred to our services in regular general condition, afebrile, cardiac and pulmonar examination without alterations, presence of severe edemain hemiface and right mandibular angle, with phlogistic signs and spontaneous drainage by the three previous surgical points. Trismus and drainage of intraoral fetid purulent secretion in gingival mucosa at the 1<sup>st</sup> and 2<sup>nd</sup> right lower molars.

It was initiated treatment with metronidazole and hydrocortisone after ceftriaxone withdrawal. Reopened with local anesthesia, the previous incisions were enlarged, a Penrose drain was placed, and it was performed abundant lavage with saline solution. A culture of the secretion was requested, and it showed streptococcal infection.



**Figure 1** – Neck CT Scan coronal cut - filling failure along the middle third of the jugular vein on the right.



**Figure 2** - Neck CT Scan coronal cut - filling failure of approximately 10 cm of the left internal jugular.

Patient evolved with marked improvement in general condition, trismus and phlogistic signs. A neck CT scan with contrast was requested, and it showed a filling failure along the middle third of the jugular vein on the right extending to the jugular foramen, with absence of opacification through contrast, reaching the sigmoid sinus on the right, inferring jugular vein thrombosis on the right.



Antibiotic therapy was kept for 14 days, and thrombosis treatment with enoxaparin sodium was initiated. After five days of hospital stay, she presented good conditions to be discharged with prescription for the use of warfarin, antibiotics and INR follow up was done at the outpatient unit.

### 3. SECOND CASE REPORT

A.G.L.M., female, 33 years old with a history of oropharyngeal pain and odynophagia for five days, using amoxicillin. It evolved with severe pain and edema at the left mandibular angle. She sought care again and it was identified a cervical abscess coming from the left tonsillar region.

The patient was referred to our service in regular general condition, afebrile, cardiac and pulmonary examination without alterations, presence of a small edema in left mandibular angle, no phlogistic signs. Absence of trismus. Oroscopy with level 4 left tonsil and intense local hyperemia. No need for drainage evidenced on physical examination.

Neck CT scan (figure 2) showed desinification of the parapharyngeal space caused by leakage of hypoattenuating material of probably inflammatory origin, reactional lymph nodes increased in the IIA/B, III, IV and V levels on the left, measuring up to 1.5 cm, and left internal jugular vein thrombosis in a longitudinal extend of approximately 10 cm.

It was initiated treatment with amoxicillin with clavulanate, and internal jugular thrombosis with sodium enoxaparin. After four days of hospital stay, she presented good conditions to be discharged with prescription for the use of warfarin, antibiotics and INR follow up was done at the outpatient unit.

### 4. DISCUSSION

Internal jugular vein thrombosis is an uncommon pathology, which results from different clinical conditions such as oropharyngeal infections, dental manipulation, central catheterization, drug abuse and neoplasias, which alter blood flow or promote changes in the vessel wall, as well as in blood coagulation. In cases of odontogenic abscess, thrombosis results from bacterial contamination of the internal jugular vein through lymphatic drainage from primary infections focus [5].

The history and the physical examination of internal jugular thrombosis are nonspecific, which difficult and deals the diagnosis [6].

CT scan with contrast has been pointed as a noninvasive diagnostic method for the study of internal jugular thrombosis, besides being very sensitive [1].

Internal jugular thrombosis treatment consists of the resolution of its etiological factor, and the use of anticoagulants, it is controversial; it is suggested that if used prematurely, it would lead to greater benefits than risks. Heparin should be used for a short time, and warfarin should be associated early in therapy, discontinuing the use of heparin, which should be discontinued when adequate anticoagulation is achieved with warfarin (3 to 5 days). Warfarin should be used for one to three months or until the thrombolytic state subsides [6].

In a review of the literature, the most common etiological factors related to deep cervical infection are dental manipulation and pharyngotonsillitis. Pain, cervical edema, fever, odynophagia, local temperature increase, and dysphagia are the most frequent symptoms associated [1].

The microbiology of dental infections in cervical spaces is characterized by a predominance of Gram-positive bacteria's, especially Staphylococcus species, and Staphylococcus aureus and epidermidis, but, increasingly, the identification of anaerobic germs in cultures emphasizes the importance of Polymicrobial infection [7].

Abscess occurs when the microorganisms invade tissues distant from the alveolar process. Their location depend on the anatomical barriers they encounter, such as bones, muscles, and fascias, which are places of resistance.

The spread of infection depends on the virulence of the pathogens involved, and on the patient's systemic conditions [8].

The abscesses mainly affect the submandibular, submentonian, and sublingual spaces, and, afterwards, masticatory and parapharyngeal. Cervical spaces communicate with each other, and the infection of one of these easily spreads to neighboring spaces.



Severe complications of an odontogenic infection include deep cervical abscesses, mediastinitis, and brain abscess. Deep cervical infections, in turn, can result in potentially fatal complications such as respiratory obstruction, descending mediastinitis, jugular vein thrombosis, and cavernous sinus thrombosis, among others [9].

Due to its predominantly streptococcal origin, the odontogenic abscess treatment recommended by the literature consists of the combination of amoxicillin and metronidazole, followed by surgical drainage of the abscess and extraction of infected teeth, producing a satisfactory resolution of the infection [1].

The most common etiologic agent is Group A hemolytic *Streptococcus*. Situations in which treatment is inadequate may develop into a not uncommon complication, which is the peritonsillar abscess, which represents a collection of purulent secretions located on the soft palate, in the supratonsillar area, in the loose tissue between the tonsil and the muscular wall [4].

The peritonsillar abscess treatment is controversial and presents divergences. The literature has shown the efficacy of the different therapeutic approaches, depending on their severity, such as: clinical treatment, aspiration puncture associated with antibiotic therapy, surgical drainage associated with antibiotic therapy and tonsillectomy [4].

Deep neck infections after peritonsillar abscess are not so frequent. What happens is that the peritonsillar abscess can spread and affect the deep tissues of the neck (especially the parapharyngeal space). The diagnosis is established after computerized tomography of the head and the neck. Treatment includes antibiotics and external drainage. The most severe cases may evolve with erosion of the internal carotid artery, thrombophlebitis of the internal jugular vein or mediastinitis, and necrotizing fasciitis [4].

## 5. CONCLUSIONS

The present work shows the importance of the diagnosis of internal jugular thrombosis in the differential and complementary diagnosis of cervical masses. Despite being an uncommon pathology, it results from different clinical conditions of high incidence such as oropharyngeal infections, dental manipulation, central catheterization, drug abuse and neoplasias.

Odontogenic and peritonsillar abscesses are serious infections of rapid progress that should be treated with immediacy, as they may lead to the development of serious complications such as internal jugular thrombosis or even death.

CT Scan with contrast of the cervical area has its well established importance in both reported cases, not only to evaluate the abscess extension and the impairment of deep cervical spaces, as well as to avoid possible complications, such as jugular thrombosis.

Thrombosis treatment consists of antibiotic therapy and use of anticoagulant medication, when the benefits are greater than the hemorrhagic risks.

In the reported cases, evolution was favorable with the introduction of adequate therapy.

## 6. REFERENCES

- [1] Mendonça, J. C. G., *et al.* Infecção cervical grave de origem dentária: relato de caso. Arch Health Invest , v. 4, p. 42-46, 2016
- [2] Kannagara D. W., *et al.* Bacteriology and treatment of dental infections. Oral Surg Oral Med Oral Pathol. 1980; v. 50 n.2 p103-9.
- [3] Peterson L. J., *et al.* Cirurgia Oral e Maxilofacial Contemporânea. 3. ed. Rio de Janeiro: Guanabara Koogan, 2000. 702p
- [4] Zorzato J. R., *et al.* Abscesso Peritonsilar: A Eficácia do Tratamento Clínico. BJORL. 2001, v.67 n.4, p. 531- 534.
- [5] Sperandio F. A. , *et al.* Trombose de veia jugular interna: relato de 2 casos. BJORL. 1997, v. 63, n. 2, p 159- 163.
- [6] Schutta H. S. Cerebral venous thrombosis. In: Joynt RJ, editor. Clinical neurology. Philadelphia: J. B. Lippincott; 1993. p.1-51.
- [7] Suehara, A. B. *et al.* Infecções cervicais profundas: análise de 80 casos. Rev. Bras. Otorrinolaringol., São Paulo , v. 74, n. 2, p. 253-259, Apr. 2008 . Available from <[http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0034-72992008000200016&lng=en&nrm=iso](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-72992008000200016&lng=en&nrm=iso)>. access on 1 Nov. 2016. <http://dx.doi.org/10.1590/S0034-72992008000200016>.
- [8] Uluibau I. C., *et al.* Severe Odontogenic Infections. Aust Dent J 2005; v. 50 n.2, p.74-81
- [9] Soares, M. T. *et al.* Infecções cervicais profundas, casuística do serviço de otorrinolaringologia do Hospital Prof. Doutor Fernando Fonseca. Revista Portuguesa de Otorrinolaringologia e Cirurgia Cérvico-Facial, v. 53, n. 3, p. 161-165, dez.



**GLOBAL JOURNAL OF ADVANCED RESEARCH**  
*(Scholarly Peer Review Publishing System)*

2015. ISSN 2183-752X. Disponível em: <<http://www.journalsporl.com/index.php/sporl/article/view/594/480>>. Acesso em: 1 nov. 2016.