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A Case Report of Preference for Anticoagulant Therapy

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ABSTRACT

Clinicians should start with a broad-spectrum antibiotic therapy with anaerobic cover until the organism and its sensitivity has been determined, however penicillin in combination with metronidazole or clindamycin monotherapy is usually preferred. In conclusion anticoagulation remains controversial in the management of thrombotic complications from head and neck infections, and further research is required to establish evidence for consensus in the antithrombotic therapy. Therefore, anticoagulation should be carried out in absence of any contraindication or presumed risk following clinical anticoagulation guidelines and only in patients with poor clinical response despite antibiotics therapy, predisposing thrombophilia and intracranial thrombosis.

KEYWORDS

Anticoagulation therapy, Intracranial thrombosis, Head and neck infection.

1. Introduction

Lemierre's syndrome (LS) was first described by Lemierre in 1936 in 20 patients presenting with anaerobic bacteremia, thrombophlebitis of the internal jugular vein, secondary septic embolism most commonly to the lungs and ENT infection most commonly in the oropharynx. In literature, there are many cases on LS but there is no established therapy and moreover the role of anticoagulation in LS is still controversial. Thereafter, authors describe a patient presenting with thrombophlebitis of internal jugular vein, thrombus of sigmoid and lateral sinuses and review the role of anticoagulation in this condition.

2. Case Report

An otherwise healthy 17-year-old woman with a medical history of recurrent oropharyngeal infection was presented to the emergency department with a sore throat, nausea and headache for six days. Neurological examination was normal. She was febrile with a temperature of 38C, respiratory rate was 20/min, pulse was 92/min, blood pressure was Laboratory data showed a white blood cell count of 12000 cells/mm3 (91.4% neutrophils, 5.4% lymphocytes and 2.5% monocytes), platelet count of 1,54000 cells/mm3 hepatic and renal function tests were within normal ranges, procalcitonin level was 19.070ng/mL and C-reactive protein 500mg/L. At this time, intravenous cefepime and metronidazole were started empirically. A computer tomography scan with intravenous contrast of head-neck was performed and it showed: right peritonsillar

abscess with a phlegm on of the neck extending from mandibular angle to the jugular notch, thrombophlebitis of right internal jugular vein (Figure 1).

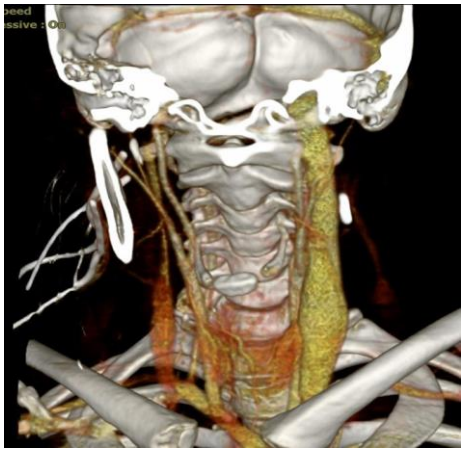

Figure 1. Computed tomography (CT) scan of the neck with MPR reconstruction showing thrombosis of the right internal jugular vein.

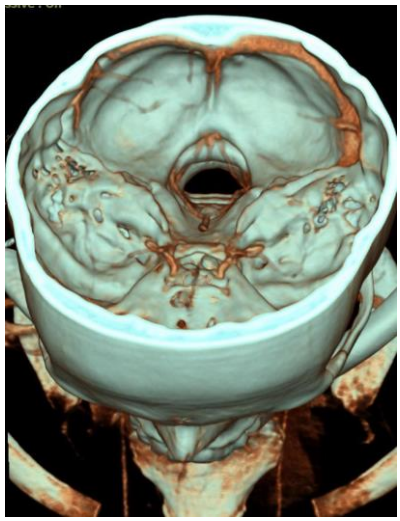

Figure 2. CT scan of the head with MPR reconstruction showing thrombosis of the right sigmoid sinus and lateral sinus.

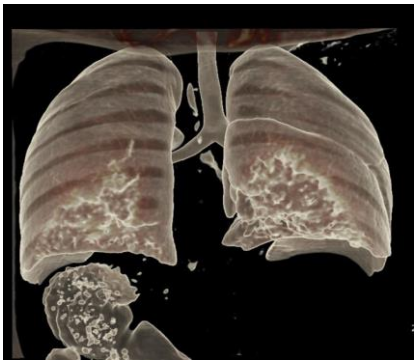

Figure 3. CT scan of the chest with MPR reconstruction showing bilateral pleural effusion compressing pulmon-

She underwent emergency incision and drainage of the neck abscess and right anterolateral thoracotomy. Antibiotics were changed to intravenous: Imipenem/Cilastatin (500mg) every six hours, plus Metronidazole

(500mg) every six hours, plus Vancomycin (1g) every 12hours for three weeks. In view of the extensive venous thrombosis involving right internal jugular veins with extension to the sigmoid and lateral sinus, she was started on anticoagulation. She was treated with subcutaneous low molecular weight heparin (4000IU) for a month.

No bacterial growth resulted from blood cultures and pus taken from the neck during the cervicectomy, attributable to ongoing antibiotic treatment; purulent material was sent to the lab in anaerobic cultures. The patient was discharged after four weeks of hospitalization and underwent an additional four weeks of oral antimicrobial therapy and did not have sequelae from LS. Twelve weeks after discharge, magnetic resonance imagin (RMI) of head and colour ultrasound of jugular vein were reexamined and the results indicated complete disappearance of thrombi..

3. Literature Review

A computerized Medline study was carried out through the use of PUBMED: using the Medical Subject Headings terms 'Lemierre Syndrome/diagnosis' and words Lemierre's syndrome and anticoagulation. From this, authors found 64 articles from 2002 to January 2018 with a total of 165 patients.

LS is a rare and fatal disease and is also known as the forgotten disease to describe the rarity of LS in the antibiotic era. The disease's mortality rate ranges from 4–18% and the incidence rate is between 0.6 and 2.3 per million people.2
However, in the last 20 years, the incidence of LS has been increasing. This can be caused by the restricted use of antibiotics for ear, nose and tongue (ENT) infections, particulate oropharyngeal infection, restriction of indications for tonsillectomy in recent years and multi drug resist ant bacteria.

The disease is diagnosed traditionally using the diagnostic criteria which include: 1) history of oropharyngeal infection (tonsillitis or abscesses), 2) internal jugular vein thrombophlebitis, 3) septic emboli in a remote site more frequently to the lungs or 4) isolation of Fusobacterium species on blood culture or from the infected site. However, the most accurate definition of LS right now should be: bacteremia with primary ENT infections (oropharynx, middle ear, oral cavity and sinus) resulting in internal jugular vein thrombophlebitis and producing metastatic emboli to the periphery. From 1936 to today, numerous cases have been written on LS but, at present, there is not a unique protocol on how to treat patients and the most controversial point is about the use of anticoagulation therapy.

Authors that are against the anticoagulation affirmed that the thrombus is due to an infection process, so when the infection is resolved, this may at the same time resolve the thrombosis. However, it is also unclear if anticoagulation therapy will expedite the resolution of thrombosis. It is theorized that initially bacteria are sequestered within a septic thrombus, creating a barrier for antibiotics penetration. Accessibility is increased only when the thrombus dissolves, exposing bacteria to a higher concentration of antibiotics.

Phan and So23 suggest the use of anticoagulation especially in patients with poor clinical response despite antibiotics therapy and also patients with predisposing thrombophilia. Schubert et al.19 and Rebelo et al.31 in their studies recommended anticoagulation in all cases of septic thrombosis of the ENT region, confronted with the serious clinical consequences of cranial thrombosis. Wang et al.63 affirmed that the early use of anticoagulation may reduce morbidity and mortality in cavernous sinus thrombosis secondary to sphenoid sinusitis.

On the other hand Johannesen and Bodtger64 in their study did not find apparent differences in mortality or course between the 64% of cases treated with anticoagulants, versus the 36% who were not. Similarly, authors

do not find differences between the cases treated with anticoagulation versus cases that were not as mortality did not change and mean duration of antibiotic therapy is always five weeks.

It is important to underline that authors do not find any difference in the duration of antibiotic therapy (five weeks) between patients treated with anticoagulation versus patients that were not.

4. Conclusion

The purpose of our review is to emphasize that priority of treatment in LS involves antibiotic therapy and surgical drainage of the infected site, while anticoagulant therapy should be started in selected cases. Clinicians should start with a broad-spectrum antibiotic therapy with anaerobic cover until the organism and its sensitivity has been determined, however penicillin in combination with metronidazole or clindamycin monotherapy is usually preferred. In conclusion anticoagulation remains controversial in the management of thrombotic complications from head and neck infections, and further research is required to establish evidence for consensus in the antithrombotic therapy. Therefore, anticoagulation should be carried out in absence of any contraindication or presumed risk following clinical anticoagulation guidelines and only in patients with poor clinical response despite antibiotics therapy, predisposing thrombophilia and intracranial thrombosis.

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