LUDWIG’S ANGINA IN THE SETTING OF OBSTRUCTING SIALOLITHIASIS

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Introduction

- Ludwig’s Angina is a potentially life-threatening cellulitis of the soft-tissues of oropharynx that can quickly lead to airway compromise.1
- The term was coined by a scientist, Wilhelm Frederich von Ludwig in 1836.2
- The majority of cases are due to a local dental infection/abscess that spreads to the soft tissues of the mouth.3
- It is possible for the infection to spread from the superficial tissues of the mouth into the medistinum, leading to potential sepsis and systemic infection.3
- Some risk factors that could predispose someone to development of Ludwig's angina include prior history of dental carries, malnutrition or current diabetes.4
- There has also been research that states that excessive NSAID use can pre-dispose someone to the pathology.4
- Patients often present with an acute onset of tongue/throat swelling. Many also report pain and a history of dental infection.3
- Some present already in airway compromise due to the ability for swelling to expand quickly in the disease process.3
- The progression of the swelling can happen quickly, making swift intervention critical.3
- Patients often require early intubation and intervention with abx and surgery depending on the cause.3
- With prompt treatment (antibiotics and early intubation as needed); the survival rate is approximately 85%.3

Table 1: Differential Diagnosis

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Allergic reaction</td>
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<tr>
<td>Drug-related angioedema</td>
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<tr>
<td>Local cellulitis</td>
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<tr>
<td>Ludwig's angina</td>
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<tr>
<td>Infected oral abscess</td>
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<td>Sepsis of unknown source</td>
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Case Description

History

- A 51-Year-old Caucasian male with a past medical history of hypertension and hyperlipidemia.
- 24-hour history of neck swelling and stomatitis
- Succumbed to the ED from urgent care to rule out Ludwig’s angina
- Described the feeling as a fullness in his neck as well as a sharp pain in his mouth, rated the pain a 7/10
- Denied any recent illness, recent dental work or new medications.
- Denied shortness of breath
- No known allergies, prior surgeries or hospitalizations and was up to date on all childhood vaccines.
- Medications metoprolol 50mg BID and losartan 100mg daily
- No recent travel and was never a smoker.

Physical Ex

- Vital Signs: BP 98/62, HR 99, RR 22, Pulse 110bpm
- Diffuse swelling was appreciated on the left side of the patient's neck and down his neck, stopping at the clavicle.
- Airway was patent, but there was diffuse mucosal edema in the oropharynx, as well as edema and purulence from his left Simon's duct.
- There was a double tongue sign present on the submandibular aspect of his oral cavity (figure 1.1).
- Lung sounds were clear to auscultation bilaterally and he had a normal rate and rhythm on cardiac exam.

Diagnostics

- Blood cultures, CBC, CMP and lactate were collected and sent to the lab
- All labs within normal limits except for WBC, 12.50x10^3/μL
- CT of the head and neck with and without IV contrast was performed
- The CT scan showed a 1.5cm stone in the patient's left parotid gland as well as soft tissue swelling with minimal tracheal compression. (figure 1.2)

Patient Management

- IV antibiotics, fluids and dexamethasone were administered promptly. Surgical site was explored
- Patient was admitted for surgical removal of the stone, which was done following the day of diagnosis.
- He was discharged on IV antibiotics and his discharge was set to be on POD 3.
- He made a ED recovery and is being followed by an ENT specialist.

Hospital Course

<table>
<thead>
<tr>
<th>Patient diagnosed in ED with Ludwig's Angina</th>
<th>Patient admitted for surgical removal of stone</th>
<th>Patient admitted for two nights on IV abx</th>
<th>Patient discharged POD #2 with no complications</th>
</tr>
</thead>
</table>

Discussion

- Due to the physical exam findings of a double tongue sign, as well as the acuity of symptom onset, the diagnosis of Ludwig’s Angina was at the top of the differential.6
- Since it was diagnosed and intervention was started in the early stage of disease, intubation was not indicated.6
- Surgical intervention in these patients has been seen to provide the best outcomes and decreases morbidity and mortality associated with the condition.7

Conclusions

- Ludwig’s angina due to obstructing sialolithiasis is a very rare cause of this potentially life-threatening cellulitis.
- The standard treatment for this form of cellulitis is IV fluids, antibiotics, surgery and early intubation if it is required.
- There is some research that states that early use of steroids is linked to more positive outcomes in patients with Ludwig’s angina.
- Quick action and early treatment are the keys to survival of this diagnosis and should be the differential for anyone presenting with acute onset of neck swelling and stomatitis.

References


Figures

Figure 1.1: “Double thumb” sign seen in some patients with Ludwig’s angina

Figure 1.2: CT imagery of the patient showing a 1cm stone in the left parotid duct and soft tissue swelling