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Case Report

Facial vein thrombophlebitis: A case report and literature review

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ABSTRACT

Septic thrombophlebitis of the facial vein (STFN) commonly presents with facial erythema, tenderness, and swelling above the involved vessel. Due to its rarity, diagnosis and treatment remain a challenge. Lemierre syndrome (LS), which consists of a triad of internal jugular vein thrombophlebitis, septicemia, and distant septic emboli, is a more common entity of which physicians are more familiar. Whether tonsillitis-related STFN is actually LS in a different anatomical area and shares the same characteristics is still left to be answered. We present a case of STFN with a review of all cases reported in the literature.

1. Introduction

Septic thrombosis of the facial vein (STFN) is an extremely rare complication of facial infection [1]. Head and neck infection (such as tonsillitis, sinusitis, and skin infection) with a relatively severe course that does not respond to empiric treatment and causes significant swelling of the face should alert the physician about the possibility of STFN and the need for further evaluation, usually contrast-enhanced imaging. Early diagnosis of STFN and initiation of appropriate treatment is an important key point in order to minimize morbidity and prevent fatal complications [2]. Since STFN is rare with very sparse published data, drawing information regarding the correct management and therapy from a similar but much more familiar disease – Lemierre syndrome (LS) – can be helpful. Herein, we present the twelfth case of STFN and the first documented case that is a sequel of a herpetic lesion of the lip. A summary of all published STFN cases is presented. We also summarize the similarity and difference between LS and tonsillitis-related STFN.

2. Case report

A 28-year-old healthy man was admitted to our ENT department with a 3-day history of fever, swelling, and hyperemia of the right side of his face. He had been treated by his family doctor with acyclovir cream with a diagnosis of herpes simplex without any improvement. Physical examination revealed facial edema of the right side of his face extending from the lip up to the zygomatic area, blisters and yellow crusts on the right side of his upper and lower lips, and mild edema of the lower eyelid. Enlarged and painful lymph nodes were palpated in his right neck. Ears, oral cavity, and oropharynx showed no signs of infection. Body temperature was 39 °C, tachycardia of 110 beats per minute (BPM), blood pressure was in normal range, and respiratory rate was 22 breaths per minute. The initial laboratory findings were remarkable for leukocytosis of 20,560 K/up, neutrophil count of 88%, and C reactive protein (CRP) level of 281.90 mg/l. The diagnosis of herpetic lesion with a super infection of bacterial cellulitis was considered and intravenous antibiotic treatment with amoxicillin-clavulanic acid 1 g t. i.d. was initiated, as well as oral Acyclovir 400 mg q. i.d. and prednisone 60 mg daily. On the second day of hospitalization the patient's status continued to deteriorate: Facial swelling had worsened and spread superiorly to involve his right medial canthus and inferiorly to the angle of the mandible (Fig. 1). He became more febrile (40.6 °C), mildly hypotensive (blood pressure 88/57), tachycardic (106 BPM), and respiratory rate of 28 breaths per minute. Laboratory tests showed increased CRP (380 mg/l), leukocytosis of 20,560 K/up, neutrophil count of 93%. Blood culture result was positive for *Staphylococcus aureus*. Antibiotic therapy was changed to IV Cefamezine 2 g t. i.d. corresponding to culture results and sensitivity. Computed tomography (CT) of the face and neck was obtained and showed severe facial cellulitis and thrombosis of the right facial vein (Fig. 2a). Upon conference with the hematology department, it was decided not to start anticoagulation therapy since the thrombus was located relatively in the

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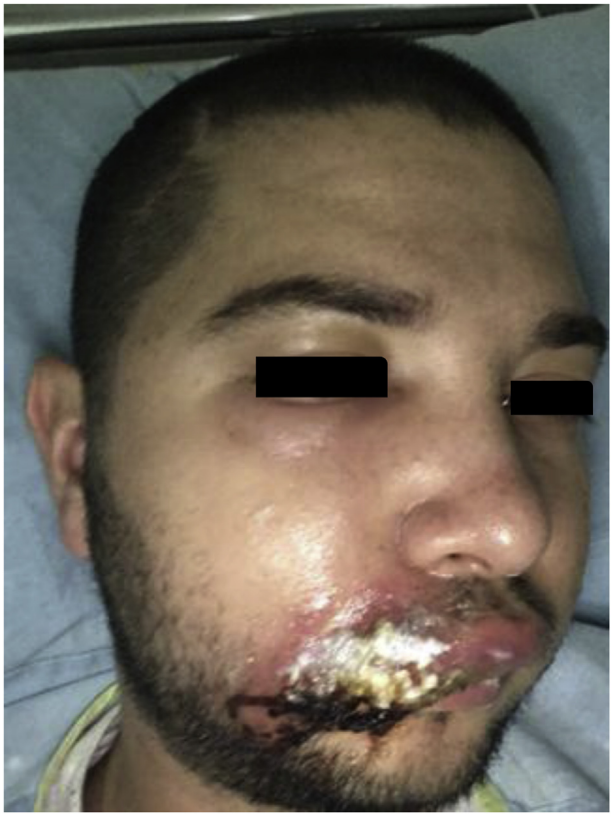

Fig. 1. The patient after 3 days of hospitalization.

distal aspect of the vein. Patient's condition slowly improved with gradual resolution of symptoms: Facial swelling and crusts subsided, body temperature, blood pressure, heart and respiratory rates normalized. White blood cell count and CRP returned to normal values and additional 2 blood cultures were negative for bacteria.

The patient was discharged on post-admission day 10 with a plan to receive oral antibiotic (cephalexin 500 mg q. i.d.) for an additional 1 week. Enhanced CT 1 month after discharge revealed resolution of the facial vein thrombosis and cellulitis (Fig. 2b).

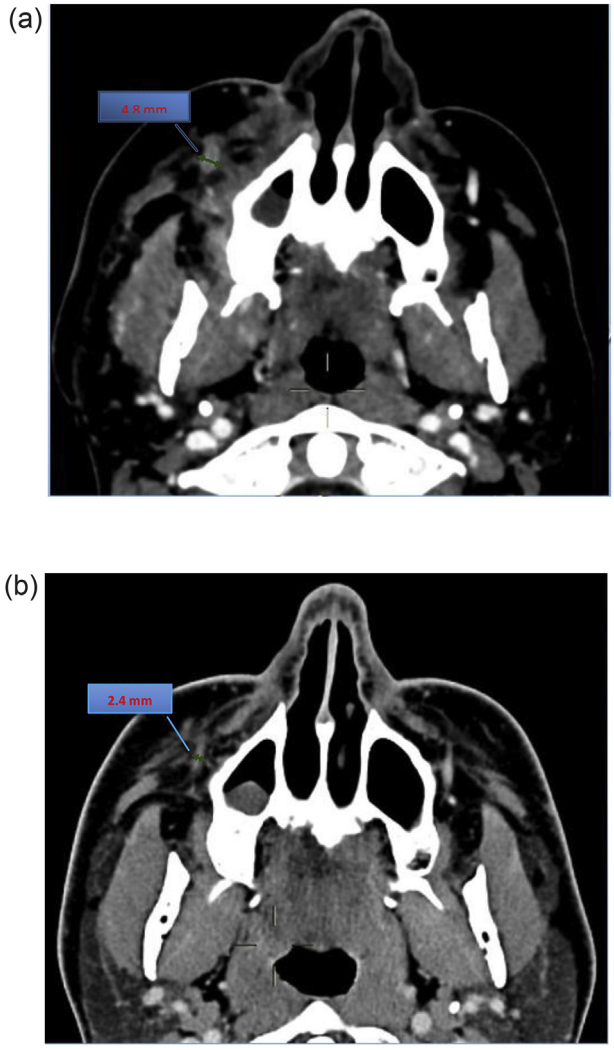

Fig. 2. a Contrast enhanced CT at hospitalization. Diameter of the facial vein distal to the thrombus is 4.8 mm. **b** Contrast enhanced CT 1 month post discharge. Diameter of facial vein in its distal area after thrombus resolution is 2.4 mm.

3. Discussion

3.1. Anatomy

The facial vein (FV) is formed by the union of the angular vein and superior labial vein at the lower latero-inferior border of the nose. It crosses the mandibular angle and enters the neck where it drains into the internal jugular vein (IJV). The FV is the main drainage of the face. It receives the parotid and masseteric veins, veins from the lips and inferior eyelid, and blood from the pterygoid venous plexus via the deep FV [2].

3.2. Literature review

STFN formed as a complication of an infectious process is very rare. A systematic review of the literature by a MEDLINE database search was performed using the terms: facial vein thrombophlebitis, septic thrombus facial vein, atypical Lemierre's syndrome. The search yielded 11 published case reports in 3 languages – English (8 cases), French (2 cases), and Russian (1 case). Specifically, information regarding age, gender, presentation, uni/bilaterality of the thrombus, primary infective site, distant sites involvement, antibiotic, bacteriology, anticoagulant treatment, and mortality were collected. Table 1 presents a summary of those cases.

Overall, 12 patients (including the present case report) were found to suffer from STFN and were included in the review. There were 7 females, 4 males, and one unknown gender, with a mean age of 22.4 years (± 9.18), age range was 6–35 years. Bilateral septic thrombi of both facial veins were noted in 2 patients (16.6%). In both of these cases, the septic thrombi did not metastasize toward distant sites. The primary ENT infection sites were tonsils and skin (3 cases of each, 25%), dental and ear (2 cases of each, 16.6%), sinus (1 case, 8.3%), and in 1 case the primary infected site was unknown. The most common clinical presentation was fever and neck swelling, which all patients suffered from. Other symptoms were characteristic to the specific location of the primary infection site. Seven patients suffered from metastatic septic emboli to distant sites: all seven patients had lung involvement and one of them suffered both lung and brain septic emboli.

Microbiological analysis of either blood or pus culture showed that the offending microorganism was the Staphylococcaceae family in 4 cases (two cases of *Staphylococcus aureus*, one case of methicillin resistant *S. aureus* [MRSA], one case of *Staphylococcus* species), one case of *Streptococcus constellatus,* and one case of *Fusobacterium necroforum*. In six cases the cultures were negative or not mentioned. Anticoagulant medications were administered in 8 patients (66.6%). Importantly, four out of five cases where anticoagulation was not used occurred before 1970. Mortality was not encountered in any of the cases.