



CASE REPORT

Severe Carbuncle of the Upper Lip and “the Danger Triangle”: A Case Report

Ruslan A. Pavlenko^a & Ievgen I. Fesenko^{b,*}

SUMMARY

A carbuncle is an acute purulent-necrotic inflammation of two or more hair follicles, sebaceous glands, and surrounding soft tissues that can lead to severe local or general complications. Extremely severe general complications such as cavernous sinus thrombosis, meningitis, and sepsis may occur if the carbuncle is in “a danger triangle.” The purpose of this article is to highlight a 36-year-old male with an extremely severe carbuncle that had about 15 pustular openings and was located in the area of “the danger triangle.” Indeed, the anatomical areas to which the dangerous triangle extends are those where the probability of developing dangerous cranial complications is high. At the same time, we believe that “the danger triangle” does not reflect the possible septic risks from furuncles and carbuncles of the lower lip. One of the formidable complications of which can be septic necrotizing pneumonia. Early diagnosis of a carbuncle in the area of “the dangerous triangle,” correctly performed surgical and medical treatment allows to avoid dangerous local and general complications.

KEY WORDS

Furuncle, boil, carbuncle, upper lip, the danger triangle, complication

^a Doctor-Stomatologist-Surgeon, Private Practice; Center of Maxillofacial Surgery and Dentistry, Kyiv Regional Clinical Hospital (place of work at moment of material collection), Kyiv, Ukraine.

^b Doctor-Stomatologist-Surgeon, PhD, Associate Professor of the Department of Surgical Dentistry and Maxillofacial Surgery, Kyiv Medical University; Center of Maxillofacial Surgery and Dentistry, Kyiv Regional Clinical Hospital (place of work at moment of material collection), Kyiv, Ukraine.

* **Correspondence:** Department of Surgical Dentistry and Maxillofacial Surgery, Kyiv Medical University, Private Higher Educational Establishment, 2 Boryspolska Street, Kyiv 02000, Ukraine.
E-mail: y.fesenko@kmu.edu.ua.
ORCID: <https://orcid.org/0000-0002-8901-1632>.

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INTRODUCTION

Some sources describe boil (also known as furuncle) as a painful, bacterial infection of a hair follicle and carbuncle as cluster of furuncles that occur when the infection spreads [1]. According to other sources, a carbuncle is a purulent-necrotic inflammation of several adjacent hair follicles and sebaceous glands, which spreads to the surrounding skin and subcutaneous tissue [2, 3].

The frequency ratio of carbuncles to furuncles is 1:6 [3]. In addition to local complications of furuncles and carbuncles of the facial and temporal area, general complications such as cavernous sinus thrombosis, meningitis, and sepsis (various forms) are also possible [2, 4-8]. For example, Rueff-Barroso et al. (2023) demonstrate in their report how infection from the area of “the danger triangle” can lead to such a formidable general complication as cavernous sinus thrombosis [9].

The purpose of this article is to highlight an extremely severe carbuncle that had about 15 pustular openings and was located in the area of “the danger triangle.”

CASE REPORT

On September 07, 2011 (16:32 p.m.), a 36-year-old Caucasian male was referred to the Department of Maxillofacial Surgery and Dentistry with complaints of significant facial edema extending to the lower eyelids, upper lip pain, limited mouth opening, and extreme fever. According to the patient, the swelling began to increase after he tried to squeeze a pimple in the upper lip area. The patient had no comorbidities.

Clinical examination revealed extreme upper lip oedema, erythema, and 15 pustular openings located in the upper lip, philtrum, and even nasal vestibule (Fig 1A). It is worth noting the location of all openings within “the danger triangle” (Fig 1B).

Under bilateral infraorbital potent anesthesia (extraoral method), the carbuncle was opened and drained. Purulent passages were observed penetrating the entire thickness of the lip, reaching and exiting even into the vestibule of the nose. All spaces (passages) in which purulent content were located were drained with rubber strip drainages. After opening the carbuncle and before draining the wound, it was washed with an antiseptic solution. After opening all the passages with purulent contents, the upper lip became soft on palpation. Upon

surgery, a swab from the wound was inoculated onto an appropriate medium and cultured.

Comprehensive antibacterial and detoxification therapy was prescribed using ceftriaxone and metronidazole IV. Day after day, a gradual decrease in swelling of both the lips and the under-eye areas and lower eyelids was noted, and body temperature normalized. According to the bacteriological analysis, *Staphylococcus aureus* was cultured. The patient was treated in the hospital for 7 days.

The wound healed with secondary tension.

DISCUSSION

If several furuncles merge, it's called a carbuncle [12]. The condition sometimes extends widely, and fresh openings appear in the skin, and tend to coalesce with those previously formed [10]. And its treatment should be as urgent and specialized as the treatment of facial furuncles [13]. Particularly careful diagnosis and treatment of boils and carbuncles located in “the danger triangle” and infraorbital areas should be carried out [2, 3, 14, 15]. Pannu et al. (2017) describe that the danger triangle of the face consists of the area from the corners of the mouth to the bridge of the nose, including the nose and maxilla [15]. “The danger triangle of the face” is also terms as “the triangle of death” [10].

Authors emphasize that the facial veins are valveless and communicate directly with the cavernous sinus through pterygoid plexus, angular, and ophthalmic veins [15]. Zhang and Stringer (2010) claim that it is not the absence of venous valves but the existence of communications between the facial vein and cavernous sinus and the direction of blood flow that is important in the spread of infection from the face [16]. The likelihood of a severe general complication is also indicated by septic emboli originating from the upper lip infection [17]. However, we believe that “the danger triangle” does not reflect the possible septic risks from furuncles and carbuncles of the lower lip. One of the formidable complications of which can be septic necrotizing pneumonia [6].

CONCLUSION

Early diagnosis of a carbuncle in the area of “the dangerous triangle,” correctly performed surgical and medical treatment allows to avoid dangerous local and general complications.



FIGURE 1. Patient appearance upon admission to hospital (**A, B**). Notes extreme swelling of the upper lip with numerous pustular openings (*arrows*). The spread of reactive edema to the infraorbital areas and lower eyelids is also noted. Image **B** shows “the danger triangle” (*in pink*).

Authors’ contribution

Both authors made substantial contributions to the conception, design of the study, analysis and interpretation, composition of the manuscript, and final approval of the manuscript.

Declaration of competing interest

The authors have no conflicts of interest to declare regarding this article.

Consent for publication

The author declares that signed informed consent was obtained for publication of patient’s images in this article.

Generative AI statement

The author(s) declare that no Generative AI was used in the creation of this manuscript.

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