

THE NECROTIZING CERVICAL FASCIITIS – CASE PRESENTATION

*M. Juncar*¹, *A. Popa*², *R. Fritsch*³, *T. Lung*¹

¹ University of Medicine and Pharmacy „Hațieganu” Cluj-Napoca, Oral and Maxillofacial Surgery Clinic, Plastic Surgery and Reconstructive Microsurgery Clinic, Cluj Napoca

² University of Oradea, Faculty of Medicine and Pharmacy Oradea, Clinical Department of Diabetes and Internal Diseases

³ University of Heidelberg, University Clinic Occupational Health Service, University Medical Officer

Abstract

The necrotizing fasciitis represents a special category of diffuse effusion, with fulminant evolution and bad prognosis. In this paper we present the case of a patient suffering from cervico-facial necrotizing fasciitis with a starting point in the right genian region, extending at the level of the superficial fascial system of the neck and reaching the level of the suprasternal integuments. A radical surgical intervention, associated with an energetic antibacterial treatment and the maintenance of the general condition have led to a favourable result in the evolution of the disease. In most cases the necrotizing fasciitis develops along the laterocervical spaces and is accompanied by mediastinal septic complications. Under such circumstances, an effective mediastinal drainage is absolutely necessary. The case presented in this paper is special because of the evolution of the disease mostly at integumentary and superficial fascial level. We consider an early diagnosis and the surgical intervention as the main factors that determine the evolution of such patients.

Introduction

The necrotizing fasciitis belongs to the category of diffuse effusions and represents the septic necrosis of the fasciae and of the subfascial tissues, and it is accompanied by general toxico-septic phenomena. Klabacha et al. [1] proposes the staging of the necrotizing fasciitis into four types: type I – inflammations of the epidermis, type II – extensive inflammations at the level of the derma, type III – inflammations localized at the level of the muscular and superficial aponeurotic structures, and type IV –

extensive infections at the level of the muscular and deep fascial structures.

At the level of the cephalic extremity, the necrotizing fasciitis most frequently associates with the diffuse effusions of the floor of the mouth or of the hemiface. The consequence is, in most cases, the septic necrosis of the deep cervical fasciae. The cases in which the effusion is localized strictly at the level of the structures of the epidermis or of the derma are extremely rare.

The beta-hemolytic streptococcus used to be considered mostly responsible for the appearance of the necrotizing fasciitis, but

recent studies suggest that in the etiopathogenesis of the necrotizing fasciitis a microbial polyflora with strong virulence seems to be involved [2]. However, there have been cases when only one type of germ determined the appearance of the necrotizing fasciitis, which is of utmost seriousness since such infections present a high degree of aggressiveness.

The medical literature presents many cases of effusions spreading from the soft perimaxillary tissues along the cervical fasciae and presenting septic mediastinal complications. Unfortunately, such an evolution is not rare, the mediastinum being the one that is mostly affected by the cervicofacial necrotizing fasciitis.

Patient and method

In this paper, we intend to present the case of a patient hospitalized and treated in The Oral and Maxillofacial Surgery Clinic I in Cluj-Napoca. We have chosen this case because it presented necrosis of the superficial fascial system (epidermis, derma and superficial cervical fascia), the starting point being represented by the structures of the integument in the mouth area.

Case presentation

The patient L.V., aged 56, is urgently hospitalized in The Oral and Maxillofacial Clinic I in Cluj-Napoca with the diagnosis of genian, cervical and presternal necrotizing fasciitis, septic condition and cachaexia.

The disease history reveals the sudden onset of the disease 6 days before by the appearance of a tumefaction at the level of the right genian region, which 2 days later turns into fistula. Subsequently, a deep tegumentary

ulceration is present which spreads quickly inside but especially outside at the level of the anterior region of the neck up to the level of the thorax integuments.

The anamnesis shows that the patient has been abandoned by the family, is unemployed and does not receive any benefit, is homeless and lives in improper life conditions.

The moment we start examining him, we notice the necrosis of the integument, of the subintegumentary tissue and of the buccinator muscle at the level of the genian region, and presenting oro-stoma. Also, we can notice the septic necrosis of the integument and of the superficial cervical fascia at the level of the anterior region of the neck, spread at the level of the suprasternal integument, as well. (figure 1). Around the lesion we can see an area of friable diffuse septic infiltration painful at touch.



Figure 1. The clinical aspect when first examined; we can see the necrosis of the anatomical structures at the level of the genian region, presenting oro-stomia and a spreading of the septic process along the superficial cervical fascia.

The general condition is severely altered, the patient being adynamic and presenting mild fever. A thorough examination reveals a blood pressure of 110/60 mmHg, feebly perceptible tachycardiac pulse (96 beats/minute) and pediculosis at the level of the scalp.

The patient is urgently hospitalized and he undergoes a surgical intervention with general

anesthesia and we perform a necrectomy up to the limit of the healthy tissue. The wound is then covered with sterile dressings, which are changed every 2 hours, moment when we perform wide lavage with antiseptic solutions (figure 2).



Figure 2. Clinical aspect after removing the areas with necrosis and after stabilizing the septic process.

In parallel, we institute an antibacterial treatment with wide spectrum, the patient being administered Oxaciline parenterally 1g every 6 hours, perfused Metronidazol 0.5g every 6 hours and Augmentin parenterally 1.2g every 12 hours.

Laboratory analyses performed on the day the patient was hospitalized revealed a serious proteic and ionic deficiency, reason why we decided upon an electrolytic and proteic re-balancing treatment. The patient manifested mild fever fits associated with tachycardia, caused mainly by dehydration, reason why we institute a therapy of hydric re-balancing.

During hospitalization we performed four more surgical interventions, with local

anesthesia, in order to remove some small areas of necrotizing tissues. After 19 days of hospitalization, the patient is released from hospital, but he is supposed to come back for the plastic surgery of the vicious scars.

Four months after being released from hospital, the patient comes back to The Oral and Maxillofacial Clinic I in Cluj-Napoca for the plastic surgery of the vicious scars. The clinical examination reveals now a limitation of the mobility of the head due to a scar extended from presternal level to submandibular level. At the level of the right genian region, an oro-stoma is present (figure 3).



Figure 3. Clinical aspect 4 months after releasing from the hospital revealing the presence of a vicious scar at the level of the stern and of the mandible and a right genian oro-stoma.



Figure 4. Final clinical aspect, after the plastic operation of the vicious scar and of the orostoma.

The surgical intervention will be under general anesthesia by means of naso-tracheary intubation, and we performed the plastic operation of the vicious scar and of the genian oro-stoma (figure 4). As a consequence, the

patient recovered functionally in a proportion of hundred per cent.

Discussions

In this paper we present the case of a patient suffering from necrotizing fasciitis localized at the level of the integuments of the face and of the neck. This type of infection presents, fortunately, a rather low incidence among the infections of the cephalic extremity and is localized most of the times at the level of the deep fascial system. The appearance of this type of inflammation is favoured by different immunosuppressant disorders. As Vaid N. et al. [3] reveals, this type of infection is most frequently present at patients suffering from old diabetes mellitus, neoplasia or decompensated leukosis, and is characterised by an ample spreading at surface and in depth and the appearance of mediastinal, pulmonary, renal and endocranial complications. In case it is not discovered in time, the necrotizing fasciitis can lead to the death of the patient because of a septic shock. Helmy A.S. et al. [4] reports a mortality rate for the patients suffering from necrotizing fasciitis of up to 50%, the main factors influencing the patients' evolution being the degree of the spreading of the inflammation and the efficiency with which the necrotizing areas have been removed.

In the case of our patient, the time span between the moment he was diagnosed and the surgical intervention was of approximately three hours. During the operation we removed the areas presenting necrosis, the risk of hematogenous dissemination of the effusion being, thus, diminished. T. Lung et al. [5] presents a similar case of necrotizing fasciitis, which had as starting point the integument of

the genian region, but which was diagnosed rather late and, in this case, the infection had enough time to spread hematogenously at distance with the appearance of septic necrosis at the level of the integument of the legs.

In parallel with the surgical treatment, we have to institute a large spectrum antibacterial treatment, administered parenterally, in view of a maximum efficiency. Initially, the antibiotic treatment is non-specific and has to cover the bacterial species most frequently involved in the triggering of such effusions. Subsequently, we have to identify the bacteria responsible for these effusions so that we can opt for the most efficient antibiotics [6]. We would like to mention the fact that antibiotherapy as singular treatment cannot cure the necrotizing fasciitis. At the level of the tissues affected by the septic process, the blood vessels are thrombotic, the action of the antibiotics upon the bacterial flora at this level being practically impossible. The role of the antibiotics is of limiting the spreading of the effusion at the level of the tissues around the lesion [7].

The evolution of the necrotizing fasciitis is, in most cases, fulminant. At the level of the cephalic extremity, the effusion is localized, most frequently, at the level of the laterocervical space (along the big vessels), or at retropharyngeal level. In such circumstances the mediastinal involvement is most of the times a rule, which is evidently favoured by the fact that the patients appeal too late to medical assistance. The accumulation of the secretions at mediastinal level imposes an accurate diagnosing and an efficient surgical intervention. The successful method of establishing the diagnosis, as Becker M. et al. [8] underlines, is the CT

examination. Currently there is an ample arguing in the scientific literature about the best method of performing an efficient drainage. Mohammedi et al. [9], in a study performed over a period of 10 years on 20 patients, reports a rate of mortality of 15% for the patients suffering from necrotizing fasciitis associated with mediastinitis, emphasizing the importance of the mediastinal debridement and of an efficient drainage. On the other hand, Nakamori Y. et al. [10], in a study performed on 33 patients, describes the mediastinal drainage on catheter and he compares it to the classical type by means of thoracotomies. The conclusion of the author is that the two drainage methods are equally efficient.

In the case of the patient presented in this paper, the evolution of the necrotizing fasciitis was an atypical one because the effusion spread at integumentary level and not at the level of the medium and deep cervical fasciae. Although the infection spread up to the thorax level, the mediastinal drainage was not necessary because the effusion spread only at the surface and not in depth. Under such circumstances, a meticulous excisional

debridement at integumentary and subintegumentary level proved sufficient for a favourable evolution of the patient.

Conclusions

The cervicofacial necrotizing fasciitis represent serious septic disorders of the cervical fascial system and they present a fulminant evolution which can lead even to the death of the patient.

An early diagnosing is vital so that we can decide upon the most efficient therapeutic plan in view of obtaining a recovery as fast as possible. The surgical treatment represents the selected treatment, but if we do not perform it in due time this can influence negatively in the evolution of these patients. Most frequently, these infections spread loco-regionally accompanied by thoracic and mediastinal septic complications, complications which have to be addressed as soon as possible.

Because of the post-operative sequelae, which sometimes are significant, we consider the treatment to be over only after they have been improved.

REFERENCES

1. **Klabacha ME, Stankiewicz JA, Clift SE.** Severe soft tissue infection of the face and neck: A classification. *Laryngoscope* 92: 1135-1139, 1982.
2. **Lanišnik B, Cizmarevič B.** Necrotizing fasciitis of the head and neck: 34 cases of a single institution experience. *Eur Arch Otorhinolaryngol* Jun 24, 2009.
3. **Vaid N, Kothadiya A, Patki S, Kanhere H.** Necrotising fasciitis of the neck. *Indian J Otolaryngol Head Neck Surg* 54: 143-145, 2002.
4. **Helmy AS, Salah MA, Nawara HA, Khatab H, Khalaf HA, El-Magid NA.** Life threatening cervical necrotizing fasciitis. *J R Coll Surg Edinb* 42: 410-413, 1997.
5. **Lung T, Mureşan O, Bayani Mojtaba.** Fasciita necrozantă cervico-facială. *Revista Națională de Stomatologie* 3-4: 105-112, 1999.
6. **Helmy AS, Salah MA, Nawara HA, Khatab H, Khalaf HA, El-Magid NA.** Life threatening cervical necrotizing fasciitis. *J R Coll Surg Edinb* 42: 410-413, 1997.
7. **Mohammedi I, Ceruse P, Duperret S, Vedrinne J M, Bouletreau P.** Cervical necrotizing

fasciitis: 10 years' experience at a single institute.
Intensive Care Med 25: 829-834, 1999.

8. Becker M, Zbären P, Hermans R, Becker CD, Marchal F, Kurt AM, Marré S, Rüfenacht DA, Terrier F. Necrotizing fasciitis of the head and neck: role of CT in diagnosis and management. *Radiology* 202: 471-476, 1997.

9. Mohammedi I, Ceruse P, Duperret S, Vedrinne J, Bouletreau P. Cervical necrotizing

fasciitis: 10 years' experience at a single institution.
Intensive Care Med 25: 829-834, 1999.

10. Nakamori Y, Fujimi S, Ogura H, Kuwagata Y, Tanaka H, Shimazu T, Ueda T, Sugimoto H. Conventional open surgery versus percutaneous catheter drainage in the treatment of cervical necrotizing fasciitis and descending necrotizing mediastinitis. *AJR Am J Roentgenol* 182(6): 1443-9. Jun, 2004.

Correspondence Data:

Mihai Juncar, Oradea, Țepeș Vodă Str. No. 23 A,
mihajuncar@gmail.com, 0744-438874