



Necrotizing Fasciitis: Case Report*

Fascitis necrosante: Presentación de caso

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Summary

Necrotizing Fasciitis is a severe soft tissue infection, which although infrequent, has a high mortality rate and can be fatal if not diagnosed promptly. Diagnosis is primarily made by clinical suspicion and confirmation by surgery; however imaging support of computed tomography and magnetic resonance imaging are helpful. We present a case of a child with high intensity pain and erythema in buttock and lower limb secondary to intramuscular injection, in which the diagnosis was initially suspected by ultrasonography and computed tomography. Imaging findings and the importance of these techniques for the diagnosis are highlighted.

Resumen

La fascitis necrosante es una infección grave de los tejidos blandos, aunque es poco frecuente, presenta una alta tasa de mortalidad, y de no ser diagnosticada rápidamente suele ser fulminante. Su diagnóstico se realiza principalmente por sospecha clínica y confirmación por cirugía; sin embargo, el apoyo imaginológico de la tomografía computarizada (TC) y la resonancia magnética (RM) han sido de gran ayuda. Se trata del caso clínico de un menor de edad, con dolor de alta intensidad y eritema en glúteo y miembro inferior secundario a inyección intramuscular, en quien el diagnóstico se sospecha inicialmente por ecografía y TC. Se destacan los hallazgos imaginológicos y la importancia de estas técnicas para su diagnóstico.

Introduction

Necrotizing fasciitis is a serious soft-tissue infection that is characterized by being rapidly progressive, and fulminating if there is inadequate management, which must be aggressive from the start. It is considered an uncommon but potentially fatal pathology, especially since its symptoms are non-specific, mainly intense pain and disproportionate to physical examination, accompanied by erythema, which makes early diagnosis difficult and allows its evolution. The diagnosis of this entity should be made from a high clinical suspicion and confirmation by surgical intervention. Imaging, such as magnetic resonance imaging (MRI) and computed tomography (CT), are of great help in cases such as the one presented below, ultrasound, which is a little used technique, may show changes suggestive of this pathology; however, if the suspicion is high, the surgical intervention should not be delayed by its realization.

Case presentation

A 9-year-old male patient who entered the emergency department because of a clinical presentation of a 12-hour course consisting of headache and quantified fever up to 39.8 ° C, which does not give rise to acetaminophen. On admission, intramuscular diclofenac is given to the left gluteus and he is discharged at night. The next day, the patient re-emerges to the emergency room with an erythematous macula in the injection area and pain that does not give way with physical means. Paraclinics were performed with the following results: PCR 0.04, blood count with 6,900 leukocytes, neutrophils 87.6%, Hb 15.9 and platelets 169,000, which is why management with clindamycin and amikacin is started. The next day there is an increase in the area involved, with erythematous macula extending to the knee and vesicles on the left gluteal region. Ascent of the acute phase reactants is evidenced by which blood cultures are performed and antibiotics are modified to clindamycin + vancomycin. Soft tissue ultrasound reveals cellulitis and superficial

fasciitis (Figure 1), and CT of the gluteus and left thigh, with contrast medium, with findings suggestive of necrotizing fasciitis (Figure 2). The patient is evaluated by pediatric surgery and orthopedics who perform surgical intervention, drainage of abscess in the gluteus and left thigh, surgical lavage and debridement of deep soft tissue, a procedure in which samples of gluteus and thigh secretion are taken for culture, with negative results at 48 hours.

Discussion

La fasciitis necrosante (FN) se considera una urgencia médica por trata. Necrotizing fasciitis (NF) is considered a medical emergency because it is a serious soft tissue infection, which affects the fascia and fat tissue, which causes necrosis of the same. It is associated with a high mortality due to systemic involvement and rapid progression in subcutaneous tissue and muscle tissue. It has an annual incidence of 0.4 per 100,000 inhabitants and those affected are usually immunocompromised patients. There are 4 subtypes of NF: Type I is polymicrobial, type II is streptococcal, type III caused by gram negative and type IV, fungal. The exposed case cannot be included in the classification since the causal agent could not be isolated. The pathogenic process begins in the superficial fascia, in which bacterial proliferation occurs and toxins are generated that allow the extension of the disease along the fascia; such proliferation causes necrosis of the superficial fascia and thrombosis in the microcirculation, which causes ischemia of the subcutaneous cellular tissue. Subsequent to this, the infection progresses vertically, affecting deep planes and superficial dermis, resulting in cutaneous necrosis, ulceration and blisters (1).

The characteristic clinic consists of indurated edema that exceeds the erythematous area, appearance of hemorrhagic blisters and subcutaneous crepitation. Symptoms consist of disproportionate pain at the onset of the condition, followed by insensitivity and anesthesia as the entity progresses. NF in pediatrics initially manifests with edema, erythema, heat and significant pain in the affected area that is subsequently painless, with no delimited borders. Skin lesions develop into blue-gray plaques within 24-48 hours and may be accompanied by purple blisters.

This pathology continues to be of clinical diagnosis; however, imaging techniques are useful to exclude other entities, to determine the extent of infection and to guide surgical management (1).

In the case described, ultrasound initially suggested the infectious process due to the presence of cellulitis. Characteristically, there is an increase in the echogenicity of the subcutaneous cellular tissue, which is crossed by hypochoic septa; also, gas collections are evidenced. The use of this technique is widely used for the diagnosis of soft tissue infections; some of its advantages include its accessibility and the possibility of performing real-time dynamic exams (2), it has a sensitivity of 88.2% and a specificity of 93.3% (3). In adults it is of little contribution by the difficulty to observe in detail deep planes; however, it is useful in pediatric patients in whom soft tissue thickness is lower (4, 5).

CT is the technique of choice when there is suspicion of necrotizing soft tissue infections because of its rapid performance compared to MRI, which is the ideal technique because it is more

capable of detecting changes in soft tissues (3). MRI reveals dermal and soft tissue circumferential thickening with variable signal intensity in T1-weighted sequences and increased signal intensity in fluid-sensitive sequences; however, its performance may delay surgical management because of its low availability (3). CT with contrast medium in fasciitis reveals collection of gas and fluid in fascial planes, as well as abscesses and infiltration of adipose tissue. The most sensitive tomographic finding is thickening of the fascia (6).

The treatment of necrotizing fasciitis is mainly surgical, with the debridement of the tissue, accompanied by the broad-spectrum antibiotic support that covers the associated agents such as *Staphylococcus aureus* and gram-negative aerobic and anaerobic bacteria (3).

Despite being a rare entity, in the literature necrotizing fasciitis usually occurs in individuals who have predisposing conditions. In this case it is a child, without risk factors that only presented the antecedent of intramuscular injection of a nonsteroidal anti-inflammatory (diclofenac). Cases that associate this entity with the administration of these drugs have been described (6).

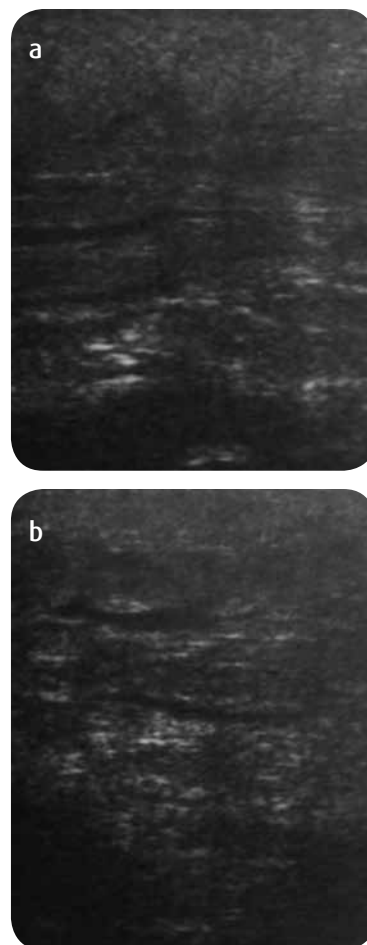


Figure 1. a and b) Ultrasound of soft tissues showing soft tissue edema, no solid or cystic collections or masses are observed.



Figure 2. (a) Coronal section, (b) axial section, and (c) sagittal section of CT with contrast medium: In the femoral head plane, subcutaneous emphysema is seen in the soft tissues of the left thigh, generalized and blurred and trabeculation of fat. Thickening of superficial and deep fascia and fluid collections below the fascia.

Conclusion

Necrotizing fasciitis is a rapidly progressive and deadly entity, and sometimes the clinical suspicion will be enough to make the diagnosis. The usefulness of the imaging techniques as non-invasive tools that allow us to obtain characteristic findings to speed up the difficult diagnosis that represents this pathology is highlighted in favor of the prognosis of the patient. According to the literature, MRI is the most effective technique; however, in this case it is evident that CT can be very effective because of its typical findings, the availability and the speed with which it can be performed; on the other hand, ultrasound, which, although it has been termed as a technique not very useful for this pathology, may become so by showing non-typical patterns, but it is suggestive of this infection, mainly in children.

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