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*The influence of nonsteroidal anti-inflammatory drugs abuse and chronic
stress on the development of necrotizing fasciitis – case report*

Necrotizing fasciitis is a soft-tissue disease, characterized by rapidly developing widespread fascial necrosis. Necrotizing fasciitis is caused by toxin-producing bacteria and is often associated with toxic shock (4). Necrotizing fasciitis is usually localized in the abdominal wall, perineum and extremities, however, it can be found in any region of the body (1). There are two main factors responsible for penetration of the pathogen into the subcutaneous space. The first of them is a disruption of the overlying skin, such as trauma, injection, surgical procedures, skin ulcers, abrasion or insect bite. The second factor is an immune system deficiency since necrotizing fasciitis is often recognized in patients with diabetes mellitus, alcoholics and (5) immunosuppressed subjects. However, also young, healthy patients suffer from this disease (3). Appropriate treatment of necrotizing fasciitis includes antibiotic therapy, hyperbaric oxygen therapy if available and supportive treatment in patients with the signs of toxic shock (2, 3).

CASE REPORT

A 19-year-old woman, candidate for the secondary-school certificate, without history of any diseases, was admitted to the Intensive Care Unit Department of Internal Medicine due to an intense pain in the left gluteofemoral region and the symptoms of a toxic shock syndrome. For 5 days before admission to the hospital the patient had a fever, up to 40°C and a strong pain in the gluteofemoral region, treated with high doses of non-steroidal anti-inflammatory drugs by oral and intramuscular routes. Blood pressure meas-

ured at the Emergency Room was 50/0 mmHg, body temperature 37.6° C, in electrocardiography sinus tachycardia 120/min was demonstrated. No episode of trauma was reported by the patient. The patient was not pregnant, which was confirmed by a gynaecological examination and the serum concentration of HCG. Physical examination revealed imperceptible femoral oedema and haematoma, the signs of peritonitis were not present. Slightly enlarged spleen and small amount of liquid in the peritoneum were found during abdominal ultrasonography, no pathologic changes were demonstrated by transthoracic echocardiography. During the next 20 hours large oedema of the left femoral region developed. The skin became purplish, bullae filled with the hemorrhagic fluid appeared (Fig. 1). Computed tomography revealed fluid spaces among femoral muscles,



Fig. 1.

left femoral circumference was twice as large as the right one. Methicillin-resistant *Staphylococcus aureus* was detected during bacteriological examination. Based on clinical and laboratory findings and consulting dermatologist's suggestion necrotizing fasciitis was recognized. The patient was treated intravenously with antibiotics, next, left femoral fasciotomy was performed.

Since huge areas of necrosis were found during fasciotomy, on the second day of hospitalization the patient was transferred by plane to the National Center of Hyperbaric Medicine Institute of Sea and Tropical Medicine in order to perform hyperbaric oxygen

therapy. *Streptococcus pyogenes* infection was confirmed by laboratory examinations. For 2 weeks the patient was treated successfully with antibiotics and 19 sessions of hyperbaric oxygen therapy, every 12 hrs for 60 min, under 2.5 atm. oxygen pressure.

DISCUSSION

In the presented case the development of necrotizing fasciitis was probably initiated by an insect bite, however, physical examination revealed no disruption of the skin that might be responsible for the pathogen's introduction. Two weeks before the onset of the disease the patient spent a few hours in the suburban area where she was likely to suffer from an insect bite, so we assume an insect bite to be the most probable cause of the infection. At that time the patient was preparing intensively to pass her exam for the secondary-school certificate and it is possible that chronic stress was responsible for the decrease of non-specific immunity. It should be noticed that our patient was a young, previously healthy woman, non-smoking, with no evidence of drug or alcohol abuse and without symptoms of any systemic disease. As mentioned above, in our patient the symptoms of developing necrotizing fasciitis, at that time unrecognized, were treated with high doses of nonsteroidal anti-inflammatory drugs, administered both orally and intramuscularly, while, which is very important, any nonsteroidal anti-inflammatory drugs or other substances decreasing non-specific immunity had not been taken by our patient before. The therapy with anti-inflammatory drugs was initiated when a fever and a strong, local pain due to soft tissue oedema appeared, which means that this treatment was started when the infection had spread out. Thus, in this case the development of necrotizing fasciitis cannot be explained by nonsteroidal anti-inflammatory drugs abuse although some promoting effect of nonsteroidal anti-inflammatory drugs on the subsequent course of the disease cannot be excluded. Since our patient had not previously demonstrated any symptoms of the diseases, that might be a result of decreased non-specific immunity, in our opinion only chronic stress can explain the development of such rare and severe disease in a 19-year-old woman.

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SUMMARY

In this report we present the case of a 19-year-old woman who was admitted to hospital due to an intense pain of the left gluteofemoral region and the symptoms of toxic shock. For 5 days before admission to hospital the patient had a strong pain and fever, up to 40° C, treated with high doses of nonsteroidal anti-inflammatory drugs administered by oral and intramuscular routes. During the next 20 hours a large oedema of the left femoral region developed, the skin became purplish, and bullae filled with the hemorrhagic fluid appeared. On the ground of typical skin changes, results of computed tomography and findings during surgical treatment necrotizing fasciitis was recognized. The patient was transferred by plane to the National Center of Hyperbaric Medicine Institute of Sea and Tropical Medicine where she was successfully treated with hyperbaric oxygen therapy. In this paper we discuss the problem of the association between the use of nonsteroidal anti-inflammatory drugs, chronic stress and the development of necrotizing fasciitis.

Wpływ nadużywania niesterydowych leków przeciwzapalnych oraz przewlekłego stresu na rozwój martwiczego zapalenia powięzi – opis przypadku

19-letnia kobieta została przyjęta do szpitala w stanie wstrząsu toksycznego, z silnymi dolegliwościami bólowymi okolicy pośladkowo-udowej. Chora od kilku dni gorączkowała, do 40°C, z tego też względu przyjmowała doustnie oraz parenteralnie niesterydowe leki przeciwzapalne. W pierwszej dobie hospitalizacji pojawiły się pęcherze krwotoczne oraz masywny obrzęk uda. Na podstawie obrazu klinicznego oraz badań dodatkowych rozpoznano martwicze zapalenie powięzi. Ze względu na stan kliniczny chora została przewieziona do Krajowego Ośrodka Medycyny Hiperbarycznej, gdzie została poddana skutecznej terapii hiperbarycznej. Na podstawie tego przypadku dyskutujemy problem związku między zapaleniem powięzi a przewlekłym stresem i nadużywaniem niesterydowych leków przeciwzapalnych.