every 6 hours and intravenous azithromycin 500 mg/d.

amines and empirical treatment with cefotaxime 2 g

with a volume infusion and perfusion of vasoactive
to the intensive care unit (ICU), where she was stabilized
bacterial respiratory infection, the patient was transferred

Serum biochemistry, coagulation study, biochemistry,
effusion with an air bronchogram in the retrocardiac area.

neutrophils: 91% [40%-75%], band forms: 46% [1%-3%]),

shift (leukocytes: 11 600/µL [range: 4000-10 000/µL],

tests clearly showed the presence of leukocytosis with left

the cardiopulmonary auscultation. Initial complementary
nothing except for the presence of bibasal crackles during

tachycardia, hypotension, and fever were all evident in the

had undergone splenectomy due to abdominal trauma

We present the case of a 35-year-old woman who

SPG are associated with disseminated intravascular
coagulation Associated With Pneumococcal Sepsis

To the Editor:

Symmetrical peripheral gangrene (SPG) is a rare but
devastating complication of septicemia. Most cases of
SPG are associated with disseminated intravascular
coaagulation (DIC).

We present the case of a 35-year-old woman who
had undergone splenectomy due to abdominal trauma
at 3 years of age; she was referred to hospital with fever
and severe prostration with onset 6 days previously in
the form of fever, myalgia, and dry cough. Tachycardia,
tachypnea, hypotension, and fever were all evident in the
initial evaluation. Closer physical examination revealed
nothing except for the presence of bibasal crackles during
the cardiopulmonary auscultation. Initial complementary
tests clearly showed the presence of leukocytosis with left
shift (leukocytes: 11 600/µL [range: 4000-10 000/µL],
neutrophils: 91% [40%-75%], band forms: 46% [1%-3%]),
mixed acidosis, sinus tachycardia, and bilateral pleural
effusion with an air bronchogram in the retrocardiac area.

Six hours after admission to the ICU the patient was re-evaluated clinically and petechial skin lesions were
found on the acral zones of the extremities, coalescing
to form ecchymotic plaques. Peripheral pulses were
palpable. A second complete blood count and coagulation
study performed at this time were consistent with DIC
(platelets: 20 000/µL [150 000-400 000/µL], prothrombin
time: 20 s [10-12.5 s], partial thromboplastin time: 82.5
s [20-40 s], fibrin degradation products: 650 µg/mL [<
8 µg/mL], D-dimer: 8947 ng/mL [< 500] ng/mL). Red
cell concentrates and platelets, as well as fresh plasma,
were administered. The patient's urine tested positive
for Streptococcus pneumoniae antigen and the same agent
was isolated in the CSF culture. Antibiotic susceptibility
testing revealed the organism was sensitive to penicillin
and treatment was initiated with doses of 4 million units
every 6 hours. The patient progressed well clinically over
the following days, with the skin lesions healing except
on several fingers on both hands where necrosis and dry
gangrene with mummification occurred (Figure). When
the necrotic areas had been outlined, 15 weeks later, these
areas were amputated and reconstruction was completed
with flaps.

SPG is an uncommon but well documented syndrome
first described by Hutchinson in 1891. It consists of
symmetrical gangrene in acral regions with no evidence
of large-vessel occlusion or vasculitis.1 The lesions begin
in the form of erythema or purpural lesions that develop

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Symmetrical Peripheral Gangrene and Disseminated Intravascular
Coagulation Associated With Pneumococcal Sepsis

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into gangrene within 24-48 hours. Hemorrhagic blisters are common as are proximal purpural zones that do not always develop into necrosis. SPG has been linked to many underlying medical processes, and is most prevalent in serious infections in patients with certain risk factors. The most commonly implicated microorganisms are meningococci, pneumococci, streptococci, and staphylococci. SPG associated with pneumococcal sepsis principally affects splenectomized patients and is considered to be an extremely serious condition with high rates of associated morbidity and mortality.

Up to 85% of cases of SPG are linked to DIC. Although it has been proposed that DIC leads to ischemia and posterior gangrene of the acral zones through the formation of intravascular clots in the microcirculation, other authors have related SPG to an initial spastic rather than thrombotic process in the vessels. Other factors potentially present in septic patients (severe hypotension, endothelial damage, microembolism, and the use of inotropic drugs) could also play a role in the pathophysiology of this entity.

There is no specific treatment for SPG. Treatment of the underlying cause and DIC is of vital importance. Isolated cases of SPG have been successfully treated through sympathetic blockade, leukapheresis and plasmapheresis, acetylsalicylic acid, or a combination of anticoagulants and vasodilators. Early amputation is contraindicated, as secondary infection of the necrotic tissue is uncommon and delimitation of the ischemic lesions occurs with time. Initially, treatment is based on protection of the extremities and nursing care, with debridement, skin grafts, and partial or total amputation performed later. Surgery must be followed by rehabilitation of the patient with physiotherapy in order to conserve the highest possible level of functionality.

We wish to use this case to stress that, in the clinical setting of sepsis, SPG is considered a valuable skin marker of DIC and can therefore be seen as a sign of a very poor prognosis in this group of patients.

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Conflicts of Interest
The authors declare no conflicts of interest.

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