

## STAPHYLOCOCCAL IMPETIGO WITH SEVERE SEPSIS - CASE REPORT

Tamara Marcovici<sup>1</sup>, I. Sabau<sup>1</sup>, I. Simedrea<sup>1</sup>, Otilia Marginean<sup>1</sup>, Camelia Daescu<sup>1</sup>, Oana Belei<sup>1</sup>, Marinela Lesovici<sup>2</sup>, Daniela Chiru<sup>2</sup>

<sup>1</sup>First Pediatric Clinic „Victor Babes” University of Medicine and Pharmacy Timisoara, Romania

<sup>2</sup>„Louis Turcanu” Children’s Emergency Hospital Timisoara, Romania

### Abstract

Staphylococcus aureus is the most common cause of pyogenic infection of the skin, little infants being extremely susceptible. Staphylococci may enter in the blood with subsequent involvement of the organs. The development of staphylococcal disease is related to resistance of the host and to virulence of the organisms bacteria. We present the case of a five months old female infant hospitalized in our clinic for disseminated skin lesions, diarrhea with dehydration and sepsis with Staphylococcus aureus.

**Key words:** Staphylococcus aureus, impetigo, sepsis

### Introduction

Staphylococcus aureus causes a wide variety of infections.<sup>1,2,3</sup> It is the most common cause of pyogenic infection of the skin.<sup>4,5,6</sup> Little infants are extremely susceptible to staphylococci. A history of poor hygiene and crowded living situations are common.<sup>6</sup> Autoinfection is common and minor infection may be the source of disseminations. The intact skin and mucous membranes serve as barriers to invasion by staphylococci.<sup>4,7</sup> Staphylococcus aureus enters through damaged skin and is transmitted through direct contact.<sup>6</sup> Staphylococci may also enter the blood with subsequent involvement of the organs.<sup>1</sup> Impetigo is most common in children. Most children are younger than 2 years. Prognosis may be influenced by numerous host factors, including nutrition, immunologic competence and the presence of other debilitating diseases.<sup>4</sup>

### Case report

We present a five months old female infant admitted in the First Pediatric Clinic in „Louis Turcanu” Children’s Emergency Hospital Timisoara for high

fever, perioral, nasal, cervical, occipital and on the back crusting, diarrhoea, significant dehydration. She is the second child of a young healthy couple from a town area in Timis county. The pregnancy was followed up, pathological, with imminence of miscarriage in the second trimester. The child was born in term, with a weight of 2260 g and Apgar score 9. She was breastfed for 1 month and then with cow milk in excessive dilution with tea, with no sugar. She was precociously fed with potato mash from 3 months of age. Child’s hygiene was precarious.

### *The history of illness*

The patient presented diaper dermatitis for 2 months. The infant had high fever 39-40°C for five days, productive cough, diarrhoea, vomiting and erythematous rash in the perioral and cervical area, back, buttocks, perineal and thighs region.

### *Clinical findings*

The infant was seriously ill, with axial hypotonia and hyperpyrexia 40°C. The skin was pale, mottled with prolonged capillary refill time and cold extremities. There was present erythematous rash, exfoliation and crusting of perioral, cervical, perineal and flexural thighs area; purulent conjunctivitis. (fig 1, fig.2 and fig.3) She presented moderate dehydration and clinical signs of malnutrition (body weight was 4500 g). Productive cough, tachypnea 50 breaths/ minute, intercostal bulging, dyspnea, alveolar and bronchial crackles were noticed; low blood pressure (62/33 mmHg) and high cardiac rate (140/'). Watery stools, oliguria and right ear pain accentuated by pressure on the tragus were present.



Fig. 1. Clinical aspect: face lesions.



Fig. 2. Clinical aspect: cervical and back area.



Fig. 3. Clinical aspect of the child: perineal and thighs area.

#### *Consultations*

Chest roentgenogram noticed bilateral lobular infiltrates in the lungs.

ORL examination mentioned right ear purulent secretion.

#### *Laboratory findings*

Were present acute-phase reactants: leucocytosis with neutrophilia and left shift (tabel I); positive CRP, high ESR, increase serum  $\alpha_2$  globulin fractions (tab. IV); anemia and thrombocytopenia (tab.II); metabolic acidosis (pH =7.21, BE= -8) and low electrolytes level. (tabel III).

Tabel I. Blood cell count.

Parameter	Value
Leucocyte/mm <sup>3</sup>	17800
Immature forms%	12
Granulocytes %	78
Lymphocytes %	10
Hemoglobin g/dl	9,7
Erythrocyte/mm <sup>3</sup>	2940000

Tabel II. Tests for coagulation.

Parameter	Value
Platelet count/mm <sup>3</sup>	87000
Bleeding time	3'30"
Coagulation time	4'20"
Prothrombin time	30"

Tabel III. Serum electrolytes level.

Parameter	Value
Na mmol/l	128
K mmol/l	3,8
Ca mmol/l	2,2
Cl mmol/l	90

Biochemical tests for liver and renal function were normal. It was present low level of seric proteins (45 g/l) with decreased albumin level (48%).

Peripheral and blood cultures were positive for *Staphylococcus aureus*. (tab. V) Germ's sensitivity was good for Rocephin and Lincomicine.

Tabel IV. Acute phase reactants.

Parameter	Value
Protein C reactiv	pozitiv
ESR mm/1h	65
Fibrinogen level g/l	4,99
Serum α2 globuline %	22

Tabel V. Bacteriological findings

Specimen	Result
Blood	Staph. aureus
Occipital lesion	Staph. aureus
Otic secretion	Staph. aureus
Pharyngeal swab	Staph. aureus
Conjunctival secretion	Staph. aureus
Urine	Sterile
Stool	Negative

Skin biopsy from thigh area was performed but it was unconvulsive.

*Medical therapy:*

- Systemic antibiotic treatment with Rocephin 0.5g/day and Gentamycin 0.02 g/day for 10 days, then Lincomycin 0.1 g/day
- Active immunization with antistaphylococcal vaccine, 7 doses
- Intravenous fluid resuscitation with isotonic sodium chloride solution; glucose 10% and electrolytes; correction of metabolic acidosis with NaHCO<sub>3</sub> 8,4%
- Oxygen and antipyretic therapy
- Parenteral nutrition with Aminosteril, Intralipid; administration of vitamins
- Diet therapy: oral glucose electrolyte solution (Gesol); carrots soup, boiled rice with 5% glucosis; low-lactose formula.

*Evolution*

Diarrhoea stopped after 5 days of treatment. Purulent otitis and conjunctivitis cured in 7 days, bronhopneumonia in 14 days and skin lesions healed in

4 weeks. Weight became upward after 48 hours of therapy and total increase was 1600 g.

**Discussions**

Severe malnutrition and iron deficiency anemia were caused by low birth weight and mistakes in infant's nourishment. Sepsis with multiple metastasis in lungs, ear and conjunctiva was caused by *Staphylococcus aureus*. The bacteria entered through damaged skin. The diarrhoea was secondary and dehydration driven to loss of electrolytes and metabolic decompensated acidosis. The appropriate therapy led to complete recovery without scarring.

**Conclusions**

- Staphylococcal infections have a high incidence in infants
- Malnutrition, iron deficiency anemia and lack of hygiene are factors that increase susceptibility for systemic staphylococcal infections
- Complications of skin infections are numerous and sepsis is a very serious one
- Antibiotics are the mainstay of therapy in severe staphylococcal infections

**References**

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Correspondence to:

Marcovici Tamara,  
 Iosif Nemoianu Street, No.2,  
 Timisoara 300011,  
 Romania  
 E-mail: t\_marcovici@yahoo.com