

**Case Report**

## Extensive Burns and Pregnancy in Sub-Saharan Africa: A Case Report and Literature Review

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**Abstract:** Severe burns during pregnancy are rare but pose a danger to both the mother and the fetus. The management was multidisciplinary, involving an intensivist and an obstetrician. Maternal and fetal prognosis depends on the extent of body burns. We report the case of a 23-year-old woman, 28 weeks pregnant, hospitalized for a recent, severe, extensive burn, in order to demonstrate the prevalence and maternal and fetal outcomes of this combination.

**Keywords:** Burn, Pregnancy.

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## INTRODUCTION

Burns during pregnancy are relatively rare but potentially fatal for both mother and fetus. They are most often of thermal origin [1]. Management is multidisciplinary, involving the efforts of the intensivist, obstetrician, and surgeon responsible for wound dressings. Initial care is more intensive for the mother because fetal well-being is dependent on the mother. We report a case that illustrates the severity of this association.

## OBSERVATION

A 23-year-old female patient, with a gestational age of 6 months, was hospitalized for the management of a recent extensive thermal burn sustained at her home. Initial care was provided by firefighters at the scene of the accident, who subsequently transferred her to our department. On admission, the examination revealed deep second-degree burns affecting both the anterior and posterior aspects of the trunk, the neck, the right upper limb, and the buttocks, with an estimated 30% body surface area burned (severe burn) according to the Wallace rule. The general examination revealed a blood pressure of 110/60 mmHg, a heart rate of 110 bpm, a temperature of 37.9°C, and an oxygen saturation of 100%. The gynecological examination revealed a uterine

height estimated at 25 cm, a regular fetal heart rate of 134 bpm, and a posterior, short, and dilated cervix with normal vaginal discharge. The obstetric ultrasound showed a viable intrauterine singleton pregnancy of 28 weeks' gestation with a cephalic presentation, a fetal weight of 1200 grams, and a fetal heart rate of 167 bpm. Therapeutic management consisted of stabilization with maternal and fetal monitoring and fluid resuscitation with Ringer's lactate according to protocol. Parckland. She received pain relief with titrated paracetamol and morphine, as well as anticoagulant therapy. The first dressing was applied under general anesthesia in the operating room with Biaffin; subsequent dressing changes, performed every 48 hours, were done at the patient's bedside under sedation. On day 5 of hospitalization, the patient developed cervical dehiscence with non-expulsive uterine contractions. Tocolytic treatment and uterine ripening were prescribed. The patient also presented with an infectious syndrome, including a temperature of 37.9°C and pus in some areas of the burns. Laboratory tests revealed leukocytosis at 17,890/mm<sup>3</sup> and a positive procalcitonin level of 30.69 ng /L. Bacteriological examination of the pus showed the presence of a susceptible *Pseudomonas aeruginosa* (imipenem, ceftazidime). Appropriate antibiotic therapy was prescribed. She had delivered a newborn baby weighing 1100 grams, who was transferred to the neonatal unit and died a few hours later.

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The burn lesions healed well, and the patient was discharged from the hospital after 33 days of hospitalization.

## DISCUSSION

Few African studies have focused on the specific characteristics of extensive burns in pregnant women [2, 3]. The prevalence of burns during pregnancy in women of reproductive age varies from region to region according to the series: Nigerian 6.8% [3], Iranian 1.3% [2], and Indian 9.11% [4]. The incidence of burns during pregnancy is often underestimated because pregnancy testing is not routinely performed on all women of childbearing age who present with a burn. In several studies, these burns are most often of thermal origin, related to a domestic accident, as in our reported case [1-5]. As in non-pregnant women, severe burns cause extravasation of fluid into the interstitial space, leading to hypotension and, in the long term, hypoxia in pregnant women. This results in a decrease in uteroplacental blood volume, endangering the life of the fetus [6, 7]. Therefore, fluid resuscitation must be initiated early to maintain adequate circulating blood volume for both the mother and the fetus. Severe burns, which are most often complicated by infections of the lesions after three days, are responsible for an increase in the secretion of prostaglandins which stimulates the uterine myometrium and is responsible for early obstetric labor [8].

Our patient developed an infection of the burn lesions five days after admission and experienced uterine contractions. Despite the tocolytic treatment initiated, she delivered, and the fetus died a few hours later. Cesarean section is recommended for any pregnant woman beyond 24 weeks of gestation with a burn and a burn surface area (BSA) greater than or equal to 55% according to Wallace's rule, due to the significant risk of maternal and fetal mortality [9].

Several studies had shown that maternal and fetal mortality is directly proportional to the extent of body surface burned [1-10]. In Karim's study in Iran, the percentage of body surface burned in women who died and women who survived was 72% and 30% of cases respectively [1]. Our patient had a SCB of 30%. Other poor prognostic factors identified include advanced age, burns with inhalation, burns from suicide attempts, sepsis and the occurrence of renal failure [1, 2]. Based on our experience and a review of the literature, we propose the following recommendations:

- Patient care should preferably take place in a specialized center;
- Good hydroelectrolytic balance initiated early
- Induction of labor if pregnancy is in the third trimester
- A multidisciplinary effort involving an intensive care specialist and an obstetrician.

## CONCLUSION

Burns during pregnancy are rare but serious because they can be life-threatening for both mother and fetus. Appropriate management requires a trained multidisciplinary team and a specialized center.

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