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GAVIN PUBLISHERS

Archives of Surgery and Clinical Case Reports

Talib S, et al. Arch Surg Clin Case Rep 3: 144.

DOI: 10.29011/2689-0526.100144

Case Report

# Massive Vulvar Edema Complicating Severe Preeclampsia: A Case Report

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**Citation:** Talib S, Slaoui A, Mahtate M, Etber A, Lakhdar A, et al. (2020) Massive Vulvar Edema Complicating Severe Preeclampsia: A Case Report. Arch Surg Clin Case Rep 3: 144. DOI: 10.29011/2689-0526.100144

**Received Date:** 16 September, 2020; **Accepted Date:** 21 September, 2020; **Published Date**: 28 September, 2020

## Abstract

**Background:** Massive vulvar edema is uncommon during pregnancy and is considered to be a dreadful complication of severe pre-eclampsia. It therefore requires special attention since it can be associated with materno-fetal morbidity and mortality.

**Case Presentation:** We hereby report an uncommon case of 21-year-old patient gravida 1 para 1 who presented a huge vulvar edema secondary to a severe pre-eclampsia at 32 weeks' gestation. Because of an uncontrolled blood pressure, persistent HELLP syndrome, deteriorated renal function and nonreassuring fetal status, a caesarean section was decided. The blood results have normalized within a week after delivery and the vulvar edema dissolved two weeks later.

**Conclusions:** Massive vulvar edema may be the reason for consultation and reveal severe preeclampsia. The treatment is mainly etiological and the evolution is often favorable.

**Keywords:** Pregnancy; Preeclampsia; Vulvar edema

**Abbreviations:** PE: Preeclampsia; HELLP Syndrome: Hemolysis Elevated Liver Enzymes and Low Platelets Syndrome; SBP: Systolic Blood Pressure; DBP: Diastolic Blood Pressure

## Background

Pre-eclampsia is a public health problem and the complexity of its pathophysiology is reflected in a very large clinical polymorphism, which sometimes delays diagnosis and therefore management [1-3]. It generally includes the association of maternal hypertension and proteinuria and sometimes signs of clinical or biological severity [4,5]. Voluminous vulvar edema in association with preeclampsia may indicate the gravity of the disease and is then a poor prognostic sign [6]. Therefore, every massive vulvar edema during gestation should be considered as a high risk of severe preeclampsia and should require hospitalization for maternal and fetal monitoring. The practitioner must be prepared for immediate delivery and possible complications in these patients. Our goal is to shed light on massive vulvar edemas secondary to severe pre-eclampsia in order to contribute to their better management. For this purpose, we report the case of a 21 years old primigravida with severe preeclampsia at 32 gestational weeks revealed by a massive vulvar edema.

## Case Report

We hereby report an uncommon case of a 21-year-old patient gravida 1 para 1 with no particular pathological history, who presented at 32 weeks of gestation with chief complaint of huge vulvar edema of rapid onset, hindering with daily activities, with no notion of vulvar trauma, infection or drug intake. On admission, the patient was apyretic and physical examination revealed a blood pressure of 170/100 mmhg and a urine dipstick positive for proteinuria. Examination of vulva revealed a non-inflammatory translucent edema of labia majora (Figure 1). There was no regional lymphadenopathy, varicosities or signs of deep vein thrombosis. Mild bilateral pitting pedal edema up to the ankle was also present. Obstetrical examination found a fundal height of 26 cm, fetus in a cephalic presentation with regular heart rate and closed posterior cervix. Blood analysis within the first day of her admission revealed a serum creatinine of 0.9 mg/dL, uric acid of 5.0 mg/dL and normal coagulation studies and liver enzymes.

**Figure 1:** Massive vulvar edema in a patient with severe preeclampsia.

The patient was given alpha-methyldopa 500 mg thrice daily and an intramuscular injection of magnesium-sulfate. Steroids were also administrated to accelerated fetal lung maturity. During her third day of hospitalization, there was a rapid increase of her vulvar edema and her blood pressure was uncontrolled and climbed to 210/120 mm Hg despite maximal doses of nifédipine and alpha-methyldopa. The 24 hours urine collection showed significant proteinuria at 11 g/24 hours. Laboratory tests showed severe thrombocytopenia (platelet count declined from 185,000 to 72,000/L), hemolysis, creatinine had risen to 1.8 mg/dL and increased liver enzymes (SGOT rose from 62 to 540 U/L and SGPT from 36 to 216 U/L).

In consideration of the worsening blood test results, patient's state, uncontrolled blood pressure and nonreassuring fetal heart rate tracing, it was decided to proceed to an urgent caesarean section. It resulted in the delivery of a male baby-born, weighing 2050g, APGAR score of 7 at the first minute, and 9 at the fifth minute. The intraoperative examination did not find either a retroplacental hematoma or a subcapsular hematoma of the liver. Hemostasis was assured and a drain was put in place to ensure surveillance for 48 hours. Within the first postoperative week, we treated the massive vulvar edema with topical magnesium sulfate dressings combined with an increase in the daily protein intake. The evolution was marked by the rapid normalization of the blood pressure figures and a spectacular regression of vulvar edema and its complete disappearance within 2 weeks. The newborn left the neonatal department on the fifth day.

## Discussion

Massive vulvar edema in pregnancy is uncommon and represents a cause for concern since it can be associated with serious pathologies, in particular severe preeclampsia [7]. Preeclampsia is a pregnancy-specific hypertension, considered to be one of the main causes of materno-fetal morbidity and mortality; being responsible for 50,000 maternal deaths per year worldwide, the majority of which concerns low- and middle-income countries where the lack of proper monitoring of pregnant women is a major public health problem [3,8]. It usually occurs after the 20th week of amenorrhea and is defined by the association of elevated blood pressure, with SBP and/or DBP respectively superior to 140mmHg and 90mmHg measured twice at an interval of 20 minutes, and proteinuria higher than 300mg per 24 hours. It is a glomerular proteinuria made mostly of albumin [3]. Preeclampsia is considered to be severe when the SBP and/or DBP are higher than 160 and 110 and when proteinuria is superior to 5g per 24 hours [3]. Edema is no longer part of the pathological definition of the preeclampsia.

Indeed, edema can be present in 80% of normal pregnancies [3]. However, some of its characters can be a warning sign. The swelling is caused by fluid retention. It often affects the lower body parts, such as the legs, feet, and ankles, but it can occur anywhere. They are characterized by their sudden appearance and rapid progression during gestation [4]. The appearance of edema during pregnancy is multifactorial and involves the activation of the renin angiotensin system, estrogen and compression of the inferior vena cava by the enlarging uterus. Whereas in case of preeclampsia, the increase in capillary pressure and the decrease in oncotic pressure by hypoalbuminemia bring fluids into the interstitial compartment [9,10]. We can then consider that the presence of edema in the event of hypertension is due mainly to increased vascular permeability with low plasma levels of albumin; and the formation of massive vulvar edema is due to its declivity in the supine position and its richness in loose connective tissue with thin epithelial layers [9,11,12].

In the cases described in the literature, vulvar edema associated with gestational hypertensive disorders are found to be linked to a poor prognosis; it is therefore essential to detect them early and to look for signs of severity in order to achieve the most appropriate care and improve the maternal-fetal prognosis [12]. Morris et al. described two cases of massive vulvar edema in patients with severe preeclampsia, which couldn't be managed with medication either due to acute fetal distress and worsening of the mother's state; therefore, a cesarean was done to rescue both the mother and the fetus [13]. The massive vulvar edema in our patient can be attributed to hypoproteinemia often linked to severe preeclampsia; which creates a major threat, especially since it was associated with a HELLP syndrome. This rare complication was then a warning sign which meant that the disease progresses and worsens. Management of severe pre-eclampsia focuses on medical treatment of blood pressure and prevention of seizures using magnesium sulfate, however, in some cases the conservative measures are not enough and the ultimate cure remains urgent delivery of the fetus [14].

Thereby, timing of delivery depends on several factors, including gestational age, fetal lung maturity and most importantly, disease severity. In our case, the persistence of a severe hypertension despite medical treatment, progressive deterioration in renal function, the appearance of HELLP syndrome and non-reassuring fetal testing were the evidence of disease progression and the reason of our decision to perform an urgent cesarean section in the 32nd weeks of gestation. The blood pressure figures and biological anomalies have normalized in the post-partum period; furthermore, vulvar edema resolved gradually and disappeared completely within two weeks. Relief of pain and discomfort due to vulvar swelling was possible thanks to the topical application of dressings coated with magnesium sulphate, permitting the reduction of the pressure of venous perfusion in the richly vascularized areolar vulvar tissue [15]. Some authors suggest that mechanical drainage is an alternative, in the event of non-response to non-invasive methods [15].

## Conclusions

Massive vulvar edema is unusual during pregnancy; it characterizes conventionally severe forms of preeclampsia. It therefore requires special attention since it can be grafted with maternal and fetal complications. The treatment is symptomatic and etiological and the evolution is often favorable under well-managed treatment. Practitioners must be prepared for immediate delivery and possible preeclampsia complications in these patients.

### Declarations

### Guarantor of Submission

The corresponding author is the guarantor of submission.

### Acknowledgements

None.

### Funding

There are no funding sources to be declared.

### Availability of Data And Materials

Supporting material is available if further analysis is needed.

### Competing Interests

The authors declare that they have no competing interests.

### Consent for Publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

### Ethics Approval and Consent to Participate

Ethics approval has been obtained to proceed with the current study. Written informed consent was obtained from the patient for participation in this publication.

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