International Journal of Nephrology and Kidney Failure
ISSN 2380-5498 | Open Access

CASE REPORT

Volume 4 - Issue 5 | DOI

Nephrotic Syndrome in the Third Trimester of Pregnancy: A Case in Sub-Saharan Africa and a Review of the Literature

Kane Yaya[1]*, Gueye Serigne Modou Kane[1], Aidara Chérif Mohamadou[1], Vallentin Wiliam[1], Fall Khodia[2], Lemrabott A Tall[2], Faye Maria[2], Faye Moustapha[1], Diawara M Selly[4], Diallo Penda[2], Cisse M Moustapha[4], Seck S Mohamed[3], Ka El Hadji Fary[2], Niang Abdou[2] and Diouf Boucar[2]

[1]Nephrology and Haemodialysis Department-Gynecology-Obstetrics, Radiology department, Hôpital de la paix, Assane Seck University, Ziguinchor, Senegal
[2]Nephrology and Haemodialysis Department, Hald Ucad, Dakar, Senegal
[3]Nephrology and Haemodialysis Department, CHR, St Louis, Gaston Berger University, Dakar, Senegal
[4]Nephrology and Haemodialysis Department, CHR, University of Thiès, Senegal

***Corresponding author:** Kane Yaya, Nephrology and Haemodialysis Department-Gynecology-Obstetrics, Radiology department, Hôpital de la paix, Assane Seck University, Ziguinchor, Senegal, Tel: 00221 775002165; **E-mail:** yayuskanus@yahoo.fr

Received: 04 Dec, 2018 | **Accepted:** 19 Dec, 2018 | **Published:** 26 Dec, 2018

Citation: Yaya K, Kane GSM, Mohamadou AC, Wiliam V, Khodia F, et al. (2018) Nephrotic Syndrome in the Third Trimester of Pregnancy: A Case in Sub-Saharan Africa and a Review of the Literature. Int J Nephrol Kidney Fail 4(5): dx.doi.org/10.16966/2380-5498.167

Abstract

Nephrotic syndrome occurs very rarely during pregnancy, involving about 0.012 to 0.025% of all pregnancies. We present a rare case of nephrotic syndrome at the 35th week of pregnancy. The patient was referred to the Nephrology Department by her gynecologist for progressive lower extremity edema. The initial laboratory assessment revealed proteinuria (6 g/24h), protidemia (45 g/l) and hypo-albuminemia (10 g/l) without hematuria or kidney failure. Her blood pressure was within normal range. Obstetrical ultrasound revealed an ongoing singleton pregnancy at 35 weeks of gestation without fetal or placental abnormalities. A multidisciplinary team, including a nephrologist and a gynecologist, was necessary to decide the set of interventions, considering the risks of teratogenicity, hypotrophy and fetal death. Fetal extraction was decided to be performed at 36 weeks and resulted in the delivery of a 2.3kg baby.

Keywords: Nephrotic syndrome; Pregnancy; Ziguinchor/Senegal

Introduction

Nephrotic syndrome occurs in 0.012 to 0.025% of pregnancies [1]. The reasons are multifold and histology is essential for a therapeutic intervention, as the condition for the mother and the fetus can be life-threatening. Pre-eclampsia, glomerulonephritis, diabetes, renal vein thrombosis, amyloidosis and hereditary nephritis are the most common causes. Nephrotic syndrome should be treated using steroids. During pregnancy, especially in the third trimester, corticosteroid treatment causes many impediments to the mother and the fetus. Sometimes, nephrotic syndrome does not respond to steroids. It is therefore important to perform a renal biopsy before starting treatment [2]. A multidisciplinary approach involving a nephrologist and a gynecologist is necessary to keep both the mother and the fetus safe.

We present a case of nephrotic syndrome occurring in the third trimester of pregnancy. The fetus was extracted at 36 weeks of gestational age. The patient was on steroids 4 weeks after birth and renal biopsy was not required.

Case Report

A 20-year-old woman with no previous medical and/or surgical history was admitted to the Obstetrics Department for prenatal screening. She was then admitted to the Nephrology Department for lower limb edema gradually set in since a month. The patient had a mild puffy face in the morning without extra renal signs. Her blood pressure was within normal range, and she had left-sided pleural effusion with no evidence of heart failure or portal hypertension. Urinalysis revealed proteinuria of +++, without hematuria. Further testing revealed a pure nephrotic syndrome with proteinuria at 6 g/24h, protidemia at 45 g/l and hypoalbuminemia at 10 g/l without microscopic hematuria or kidney failure and normal range blood cell count. Immunoassay was not available. Kidney ultrasonography showed a size of 11.2 cm with a common echo structure. The echocardiogram test was eventless. The chest x-ray showed signs of fluid overload.

Routine obstetric ultrasound was consistent with ongoing singleton pregnancy at 35 weeks of gestation without fetal or placental

abnormalities. The patient received low molecular weight heparin (LMWH) for thromboprophylaxis, and iron supplementation.

Fetal extraction was performed at 36 weeks of gestation, delivering a live fetus weighing 2.3 kg. Renal biopsy was delayed. Four weeks postpartum, no spontaneous remission of nephrotic syndrome was observed and oral corticosteroid treatment was initiated (prednisone 1 mg/kg/day), with complete remission one month later. The patient was monitored in the Nephrology Department on a regular basis.

Four weeks after starting corticosteroid therapy, she was examined in the Nephrology Department. Her 24h-urine protein excretion was reduced to 1.5 g/day and her blood pressure was 120/80 mmHg. Seven weeks later, proteinuria was 0.28 g/day with normal blood pressure. At the end of the corticosteroid treatment, she was examined again in the Nephrology Department. All parameters were normal and her off spring had a good psychomotor development.

Discussion

Nephrotic syndrome during pregnancy is very rare. It is easily manageable, if there is no arterial hypertension or renal insufficiency [3]. During pregnancy, urine protein excretion elevates up to 0.39 g/day and serum albumin is reduced by 5 to 10 g/l [3]. Such physiological hypoalbuminemia during pregnancy is aggravated in cases of superadded nephrotic syndrome that may lead to fluid retention. The decrease in serum albumin can cause fetal (low birth weight and death of the fetus) and maternal complications (thromboembolic events). Our patient received anticoagulant treatment with low molecular weight heparin to prevent thromboembolic complications. The dilemma was whether to obtain a renal biopsy and start an appropriate treatment or to straightly perform emergency cesarean fetal delivery, considering the risks of using steroids or immunosuppressive drugs. Finally, after consultation with the obstetricians, the patient did not undergo a biopsy; however, fetal extraction was performed at 36 weeks of gestation delivering a child with a good birth weight. This is consistent with the data from many studies where most patients with nephrotic syndrome during pregnancy did not have routine renal biopsy. Lindheimer and Davison [4] and Lindheimer and Katz [5] concluded that biopsy should be performed infrequently during pregnancy. The biopsy revealed an alteration of renal function, a major nephrotic syndrome of unknown cause. On the other hand, a pure nephrotic syndrome should be closely monitored and biopsy should be put off until after birth.

In our case, a steroid treatment was started postpartum and the evolution was favorable with total remission. Criscuolo et al. [2] examined 23 patients with nephrotic syndrome during the third trimester of pregnancy, they started corticosteroid therapy after delivery and all signs were resolved and healing was achieved after 6 months. Iris de Castro in 2017 [6] found, on a retrospective analysis of 26 pregnancies with nephrotic syndrome, preeclampsia-like maternal complications in seven cases, premature rupture of the membranes in two cases and cellulitis in three cases. A renal biopsy was performed during pregnancy in eight patients (the median gestational age at the time of the biopsy was 21 weeks of gestation). Fetal complications included low birth weight in fourteen cases, intrauterine growth retardation in three patients, and neonatal intensive care unit admission in eight cases. Sebestyen et al. [7] reported in 2008a case of successful management of a pregnancy with severe nephrotic syndrome due to biopsy-proven membranous glomerulonephritis. This patient became pregnant during a period of non-compliance; she stopped the nephrology follow-up program and her kidney disease evolved with decompensation. From the 22nd week of gestation, the patient was treated with bolus methylprednisolone (intravenous administration of 250 mg) and a maintenance dose, plus a dose of azathioprine of 100 mg/day. During the 33rd week of gestation, caesarean section was performed due to decreased clearance of creatinine, low total serum protein, increased edema, and increased intrauterine growth retardation of the fetus. Three months postpartum, the patient's nephrotic syndrome was in complete remission. Thus, pregnant women with nephrotic syndrome are at high risk of developing both maternal and fetal complications, even in the absence of significant renal insufficiency or uncontrolled hypertension at the time of presentation of the nephrotic syndrome.

Conclusion

The management of nephrotic syndrome during pregnancy must be multidisciplinary, involving a nephrologist, a gynecologist and a radiologist. Fetal or placental abnormalities should be treated accordingly before renal biopsy. If this is confirmed, the main focus should be on whether to continue the pregnancy or not, which facilitates the cure of the renal disease. This can save patients from unnecessary kidney biopsies or steroid treatment, the effects of which are most often teratogenic.

References

1. Cohen AW, Burton HG (1979) Nephrotic syndrome due to preeclamptic nephropathy in a hydatidiform mole and coexistent fetus. Gynecol Obstet 53: 130-134.
2. Criscuolo JL, Ducroz B, Magnin G, Bernard JP, Pourrat O, et al. (1989) Pre-eclampsia and the nephrotic syndrome. Prognosis and management; apropos of a series of 23 cases. J Gynecol Obstet Biol Reprod (Paris) 18: 82-92.
3. Pandya BK, Gibson SP, Robertson IG (2002) Nephrotic syndrome in early pregnancy--is renal biopsy always necessary? Nephrol Dial Transplant 17: 672-674.
4. Lindheimer MD, Davison JM (1987) Renal biopsy during pregnancy: to biopsy or not to biopsy? Br J Obstet Gynaecol 94: 932-934.
5. Lindheimer MD, Katz AI (1994) Gestation in women with kidney disease: prognosis and management. Baillieres Clin Obstet Gynaecol 8: 387-404.
6. De Castro I, Easterling TR, Bansal N, Jefferson JA (2017) Nephrotic syndrome in pregnancy poses risks with both maternal and fetal complications. Kidney Int 91: 1464-1472.
7. Sebestyen A, Varbiro S, Sara L, Deak G, Kerkovits L, et al. (2008) Successful management of pregnancy with nephrotic syndrome due to preexisting membranous glomerulonephritis: a case report. Fetal Diagn Ther 24: 186-189.