International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Mishra VV et al. Int J Reprod Contracept Obstet Gynecol. 2023 Nov;12(11):3423-3426
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20233325

Case Report

A successful outcome of pregnancy with Berger disease

Vineet V. Mishra, Priyanka H. Rane*, Rohina Aggarwal, Kunur N. Shah

Department of Obstetrics and Gynecology, Institute of Kidney Diseases and Research Centre, Ahmedabad, Gujarat, India

Received: 18 September 2023
Accepted: 07 October 2023

***Correspondence:**
Dr. Priyanka H. Rane,
E-mail: pborole26@gmail.com

ABSTRACT

With the increasing prevalence of chronic kidney disease (CKD) in the general population, female patients of fertile age with impaired kidney function are becoming more common. The presence of CKD in pregnant patients has been associated with poorer pregnancy outcomes. IgA nephropathy is the most common glomerulonephritis worldwide. The outcome of pregnancy in patients with CKD is related to impaired glomerular filtration rate and the degree of proteinuria. In non-aggressive IgA nephropathy, there is traditionally a slow progression to chronic kidney failure in 25–30% of cases during a period of 20 years. Women with immunoglobulin g A nephropathy (IgAN) are at higher risk of hypertension, preeclampsia, and fetal loss; the prognosis is worse for those who have advanced chronic kidney disease and proteinuria. Here we present two case reports who successfully delivered having aggressive IgA nephropathy and chronic hypertension in pregnancy.

Keywords: Berger disease, Chronic kidney disease, IgA Nephropathy, Pregnancy, Preeclampsia, Proteinuria

INTRODUCTION

IgA nephropathy, also called as Berger disease is characterized by IgA depositions in the glomerular mesangial area. IgA nephropathy is the most common glomerulonephritis worldwide; the global incidence is 2.5/100,000 per year amongst adults.[1,2] The association between chronic kidney disease (CKD) and increased risk of adverse maternal and fetal outcomes which includes pre-eclampsia, accelerated decline in renal function, intrauterine growth retardation, preterm delivery and fetal death, is well recognized.[3] The incidence of pregnancy in women with IgAN ranges from 26.6% to 61%.[4] The risk of adverse obstetric outcomes is higher, with increased perinatal mortality (3% to 30%) and incidence of preeclampsia.[5] Proteinuria at the beginning of pregnancy has been reported to be strongly associated with severe preeclampsia and infant loss.[4]

CASE REPORT

A 22-year-old patient presented with IgA nephropathy with nephrotic syndrome having proteinuria since 2021 diagnosed at IKDRC Nephrology department. Patient's investigations at the time of renal biopsy are shown in Table 1.

Renal biopsy was done for immunofluorescence study on 15 March 2021 which showed 6 glomeruli in which IgA, IgM, Lambda were positive +++, mesangial and granular. IgG, C3, C1q, Fibrinogen, Kappa were negative. Renal biopsy was suggestive of IgA nephropathy (mesangio proliferative glomerulonephritis- oxford classification= M1E0S1T0L0). Her biopsy reveals morphology of focal segmental glomerulosclerosis (NOS variant).

Patient was on Tab Delta 10 OD, Tab Atorvastatin 10 OD, Tab Telmisartan 40 OD, Tab Wysolone (Prednisolone) 40 mg OD followed by 20+10 OD, Tab Calcium 500mg OD.

Patient came to IKDRC in gynac OPD for treatment of amennorhea on 01 March 2023. Her LMP was 25/12/2022 and EDD was 1/10/2023. Patient had history of one abortion at 8 weeks. She was found to be pregnant after which she was advised to go to her Nephrologist for change of treatment. Investigations were sent (as shown in

table 1) and routine follow up for antenatal care was given. Subsequently she took regular ANC visits at our hospital for BP monitoring, fetal surveillance and screening of complications. She was asked to take Tab Labetelol 100 mg 1 TDS during her antenatal period. Patient underwent LSCS for cephalopelvic disproportion on 6/9/2023 at 1:07pm with a healthy male baby weighing 2.140 kg with an apgar score of 9/10. At the time of discharge her creatinine was 0.78, Na -134.9, K- 4.9, Hb- 12.3 and Wbc – 12770.

Table 1 shows investigations at the time of renal biopsy showed ultrasound of right kidney 9×5 cm and left kidney 9×4.6 cm. Lab investigations at the time of biopsy were urine protein was 1000 mg/dl, protien:cratinine ratio >0.5, albumin: creatinine ratio was more than 300, 24 hr urine protein 5.58, and S.C3, C4 was normal and S. ANA/ds DNA, ANCA, anti-PLA2R was negative.

At term pregnancy patient at 37 weeks showed normal parameters.

Table 1: Investigations during renal biopsy and course of pregnancy.

Parameters	Feb 2021	Nov 2022	March 2023	June 2023	August 2023	Sept 2023
USG right kidney cm	9×5		9 weeks	27 weeks	34 weeks	37 weeks
Left kidney cm	9x4.6					
SBP/DBP	150/90	130/86	>140/90	140/90	130/80	130/80
Lab – urine protein mg/dl	1000	300	40	30	20	20
Creatinine	0.9	1	0.89	1.01	0.8	0.78
Protein: creatinine ratio (P/C) g/gCr	≥0.5	0.4	0.4	0.3	0.2	0.2
Albumin: creatinine ratio (A/C) mg/gCr	≥300	250	200	150	100	100
Blood urea mg/dl	12	23	16	20	19	18
S Na/K mEq/l	137/4.5	135.6/4.29	136.5/4.17	141/4.3	135/4.45	134.8/4.9
S proteins gm/dl	7	7.2	7.2	6.4	6.4	7
24 hour urine protein gm/24 hours	5.58	2.9	0.25	0.43	0.56	0.21
Albumin/globulin gm/dl	3.7/3.3	4.2/3	4.2/3	2.8/3.6	3.3/3.1	3.2/3
Hb gm/dl, WBC/cmm, platelets /cmm	15;10530; 380000	13.9;10780 ; 289000	12.8;7450; 267000	12.3;8340; 290000	12.1;7600;2,7 6000	12.3;1377; 287000
S.C3,C4	Normal					
S.ANA/dsDNA, ANCA, anti-PAL2R	Negative					
Urinary protein/creatinine ratio mg/dl	1.98	1.87	1.39	0.6	0.5	0.4

Case report 2

A 24-year-old patient presented in IKDRC gynac OPD on 6/5/2023 with 8 months amenorrhea with k/c/o IgA nephropathy since 5 years. Her LMP was 6/9/2022 and EDD 13/6/2023. She was on Tab Labetalol 100 mg OD and Tab Omnacortil (Prednisolone) 5 mg OD. She had complaints of proteinuria with left renal hydronephrosis and pedal oedema. At the time of visit her BP was 140/90. Her investigations were done as shown in Table 2.

USG findings showed growth scan 34.6 weeks by LMP and 38.4 weeks by USG with 3640 g fetal weight with high left uterine artery resistant flow. Steroid for lung maturity Inj Bethamethasone 2 doses 24 hrs apart were given and in view of high uterine artery resistant flow and left renal hydronephrosis elective LSCS was done. Patient delivered male baby weighing 3.125 kg on 11-05-2023 at 12:59 pm with an apgar score of 9/10. Nephro follow up was taken. Patient was advised parentral iron in view of anemia.

Table 2: Investigations of the patient when presented in Gynac OPD.

Parameters	8/5/2023 (34 weeks)
Hb gm/dl ,WBC /cmm, platelets/cmm	12.7/11260/262000
RBS	86
Sr creatinine	0.47
S.Na/K mEq/l	137.7/4.67
SGOT/SGPT	26/17
Urine protein mg/dl	15
Urine albumin mg/dl	15
Urea mg/dl	12
Total proteins/albumin/ globulin g/dl	6.5/3.6/2.9

Table 2 presents investigations of the patient at the time of 34 weeks of pregnancy on 8/5/2023.

DISCUSSION

IgA nephropathy is one of the most common forms of glomerulonephritis affecting women of child-bearing age. The prevalence of CKD in pregnancy is predicted to rise due to increasing maternal age and obesity. Although CKD is not a barrier to reproduction in most women, the risk of adverse pregnancy outcomes is increased in women with CKD including preeclampsia, fetal growth restriction, preterm delivery and accelerated loss of maternal renal function.[3] Clinical parameters used to determine the prognosis of IgA nephropathy are the level of proteinuria, hypertension and serum creatinine, and the pathological indicators are the presence of glomerular sclerosis, interstitial renal tubular injury, vascular lesions. Low dose aspirin, low molecular weight heparin, labetalol, nifedipine, methyldopa, prednisolone, azathioprine, ciclosporin, tacrolimus and hydroxychloroquine are safe for use in pregnancy. Women can breastfeed whilst taking prednisolone, hydroxychloroquine, azathioprine, ciclosporin, tacrolimus, enalapril, captopril, amlodipine, nifedipine, labetalol, atenolol and low molecular weight heparin. When compared with prepregnancy levels, decreased renal function was defined as a 50% or greater increase in serum creatinine level and/or a 20 ml/mm or more decrease in GFR, increased blood pressure as an elevation of at least 30/20 mm Hg and increased proteinuria as a doubling of protein excretion based on 24-hour urine collection. Managing pregnancy in patients with underlying glomerulonephritis is becoming more important for clinicians, as now-a-days many patients are willing to take on the challenge of pregnancy.

Patients with IgA nephropathy will probably tolerate pregnancy well and it will most likely not have an adverse effect on the course of their underlying disease, if blood pressure is normal and GFR more than 70 ml/min before conception. The impact of IgAN on maternal and fetal outcome is controversial. A decline in kidney function, worse in advanced chronic kidney disease (CKD) and a higher risk of superimposed preeclampsia (SPE) have been reported.[4,6-8] In a multicentre study on pregnancy and progression of IgAN, Limardo et al reported a decline in kidney function in both the pregnancy and the non-pregnancy group, with initial proteinuria predicting a faster decrease.[6] The incidence of new-onset hypertension in normotensive women with IgAN prior to conception has not been associated with pregnancy.[6] An analysis of 12 Saudi women with well-controlled blood pressure prior to conception found that all of them required treatment for hypertension during pregnancy.[7] In our case report both the patients had chronic hypertension and showed progressive worsening of blood pressure starting from 9 weeks gestation. Treatment with labetalol 100 mg in both the patients was administered, since patients with IgAN and chronic hypertension may, in fact, need aggressive treatment to control blood pressure. Such an approach, combined with the introduction of a low protein diet, was effective in controlling 24-h urine protein excretion, which was reduced from 5.58 g to 0.21 g. Due to the increased risk of teratogenicity, administration of ACE inhibitors and angiotensin receptor inhibitors is contraindicated during pregnancy. Growing evidence supports the option of a low-protein diet for CKD patients since it has the potential advantages of controlling proteinuria and hyperfiltration. Recently, infant loss has been closely associated with CKD stages: 19%, 23% and 45% in stages 1, 2 and 3 to 4, respectively.[4] CKD poses a challenge for managing pregnancy, from the early stages. Indeed, the rates of caesarean section, preterm birth and neonatal intensive care are higher than normal even at CKD stage 1. Preconception counselling and strict follow-up are advisable, even when renal function appears to be maintained at the beginning of pregnancy.[9,10] Proteinuria at conception has been independently associated with a faster decline in postnatal maternal eGFR. A reduction in urine protein levels (N 30%) prior to pregnancy is thus desirable in order to preserve kidney function.[11] Chronic kidney disease and preeclampsia may both present with hypertension and proteinuria in pregnancy and they are often hard to distinguish. Uteroplacental flows and maternal circulating angiogenic factors like soluble fms-like tyrosine kinase 1 (sFlt-1), placental growth factor (PlGF) and their ratio are promising methods to distinguish between CKD and preeclampsia.[12]

It is now acknowledged that preeclampsia can affect kidney health in the long term. Recent meta-analysis by Covella et al. showed that preeclampsia significantly increases the risk of end stage renal disease. However, there is lack of sufficient data to show a relationship between preeclampsia, albuminuria and chronic kidney disease. Renal functions of every patient with preeclampsia should be followed at least for 12 weeks after the delivery, as the symptoms of preeclampsia should disappear at this time.[13]

CONCLUSION

Women of fertile age who were unable to conceive or carry a viable pregnancy just a short time ago now have that chance with the advancement of modern medicine. Close monitoring of renal function, blood pressure, genitourinary infections and fetal conditions is warranted to minimize the risk of hypertension, preeclampsia, preterm delivery and fetal loss. Prevention of proteinuria before and during pregnancy is strongly recommended, as it is one of the main risk factors for adverse outcomes. Pregnancy does not appear to be associated with a faster decline in renal function in these patients.

ACKNOWLEDGMENTS

The authors would like to thank the professors who guided through this work.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Fitzpatrick A, Mohammadi F, Jesudason S. Managing pregnancy in chronic kidney disease: improving outcomes for mother and baby. Int J Womens Health. 2016;8:273-85.
2. McGrogan A, Franssen CFM, de Vries CS. The incidence of primary glomerulonephritis worldwide: a systematic review of the literature. Nephrol Dial Transplant. 2011;26(2):414-30.
3. Nevis IF, Reitsma A, Dominic A, McDonald S, Thabane L, Akl EA, et al. Pregnancy Outcomes in Women with Chronic Kidney Disease: A Systematic Review. Clin J Am Soc Nephrol. 2011;6(11):2587-98.
4. Su X, Lv J, Liu Y, Wang J, Ma X, Shi S, Liu L, Zhang H. Pregnancy and Kidney Outcomes in Patients With IgA Nephropathy: A Cohort Study. Am J Kidney Dis. 2017;70(2):262-9.
5. Waness A, Al Sayyari A, Salih SB, Al Shohaib S. Increased risk of hypertension, proteinuria and preeclampsia in pregnant saudi females with IgA nephropathy. Hypertens Pregnancy. 2010;29(4):385-9.
6. Limardo M, Imbasciati E, Ravani P, Surian M, Torres D, Gregorini G, et al. Pregnancy and progression of IgA nephropathy: results of an Italian multicenter study. Am J Kidney Dis. 2010;56(3):506-12.
7. Waness A, Al Sayyari A, Salih SB, Al Shohaib S. Increased risk of hypertension, proteinuria and preeclampsia in pregnant saudi females with IgA nephropathy. Hypertens Pregnancy. 2010;29(4):385-9.
8. Suetsugu Y, Tokudome G, Sugano N, Yoshizawa T, Endo S, Hara Y, et al. [Study on the predictors for superimposed preeclampsia in patients with IgA nephropathy]. Nihon Jinzo Gakkai Shi. 2011;53(8):1139-49.
9. Piccoli GB, Attini R, Vasario E, Conijn A, Biolcati M, D'Amico F, et al. Pregnancy and chronic kidney disease: a challenge in all CKD stages. Clin J Am Soc Nephrol. 2010;5(5):844-55.
10. Piccoli GB, Fassio F, Attini R, Parisi S, Biolcati M, Ferraresi M, et al. Pregnancy in CKD: whom should we follow and why? Nephrol Dial Transplant. 2012;27(3):iii111-8.
11. Oh HJ, Han SH, Yoo DE, Kim SJ, Park JT, Kim JK, et al. Reduced pre-pregnancy proteinuria is associated with improving postnatal maternal renal outcomes in IgA nephropathy women. Clin Nephrol. 2011;76(6):447-54.
12. Rolfo A, Attini R, Tavassoli E, Neve FV, Nigra M, Cicilano M, et al. Is It Possible to Differentiate Chronic Kidney Disease and Preeclampsia by means of New and Old Biomarkers? A Prospective Study. Dis Markers. 2015;127083.
13. Covella B, Vinturache AE, Cabiddu G, Attini R, Gesualdo L, Versino E, et al. A systematic review and meta-analysis indicates long-term risk of chronic and end-stage kidney disease after preeclampsia. Kidney Int. 2019;96(3):711-27.

Cite this article as: Mishra VV, Rane PH, Aggarwal R, Shah KN. A successful outcome of pregnancy with Berger disease. Int J Reprod Contracept Obstet Gynecol 2023;12:2423-6.