GAVIN PUBLISHERS

Journal of Urology and Renal Diseases

Lodhi A, et al. J Urol Ren Dis: JURD-152.
DOI: 10.29011/2575-7903.000052

Case Report

Latex and Nephrotic Syndrome

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Citation: Lodhi A, Lodhi F, Rasul E, Saleem A (2017)Latex and Nephrotic Syndrome. J Urol Ren Dis: JURD-152. DOI: 10.29011/2575-7903.000052

Received Date: 11 August, 2017; **Accepted Date:** 08 September, 2017; **Published Date:** 15 September, 2017

Introduction

Nephrotic syndrome is a kidney disease with proteinuria, hypoalbuminemia and edema. It can be primary, being a disease specific to the kidneys, or secondary, being a renal manifestation of a systemic general illness. Minimal change disease is the most common cause of primary nephrotic syndrome in children. It causes 80% of cases in young children and only10-15% of cases in adults. The cause is unknown but it can be related to allergic reactions like bee sting, medications, tumors, vaccinations and infections.Latex sensitivity is an immunological response to either the protein in the latex or the chemicals used in the production of latex compounds. Some patients are at high risk for developing latex allergies like children with spina bifida, congenital urinary tract anomalies, health care workers etc.

Case Report

History of present illness

54-year-old Caucasian male presented with facial, upper and lower extremity edema for two weeks. Also described a resolving rash on his chest and back. Patient also reported shortness of breath with mild activity, which developed a couple of days prior to presentation but no orthopnea, paroxysmal nocturnal dyspnea or chest pains. Patient reports an episode of bilateral lower extremity edema at end of a camping trip a year ago which totally resolved in a week with oral furosemide.PMH: GERDFamily history: No history of renal diseasePhysical Examination: Chest was clear to auscultation. There was mild pitting edema of both lower extremities up to the knees and very faint residual rash on chest and back.Laboratory evaluation:Laboratory tests showed a creatinine of 1.1, albumin of 1, triglycerides of 1028. Urinalysis had zero to two red blood cells, zero to two hyaline, zero to two granular casts and 500mg/dL of protein.

Course of illness

Patient became symptomatic two weeks ago following a consultation visit to his dentist about getting dentures. His dentist only did X-Rays and a mouth exam with latex gloves. A day later, patient reported swelling of his face, periorbital area, upper and lower extremities. The facial symptoms resolved and the rash improved but the edema in his lower extremities progressively worsened. 24-hour urine protein revealed nephrotic range proteinuria. ANA was negative. C3 and C4 levels were elevated. CT guided renal biopsy revealed completely normal light microscopy but minimal change disease on electron microscopy. In addition, mild tubular injury was also present. Patient denied working in his garden, insect bites, recent illness, vaccinations or use of any over the counter medications. Patient was managed conservatively and his symptoms improved during the course of hospital stay. Outpatient follow up in two weeks revealed a creatinine of 0.94, albumin of 3.4 and a protein to creatinine ratio of 49mg/mmol. His symptoms had completely resolved by this visit and so did his proteinuria (Figure 1.1-1.4).

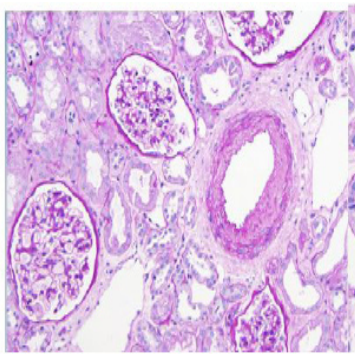

Figure 1.1

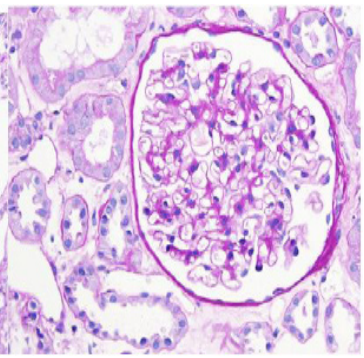

Figure 1.2

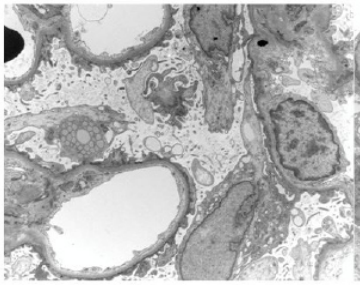

Figure 1.3

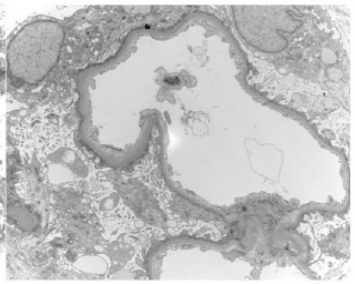

Figure 1.4

Figure 1.1-1.4: 1.1 Light Microscopy HE stain: Mild tubular injury, normal glomeruli; **1.2** Light Microscopy HE stain: Normal glomerulus; **1.3** Electron Miscroscopy: Foot process effacement; **1.4** Electron Miscroscopy: Mild foot process effacement.

Discussion

We feel that this is a case of latex allergy that may have caused minimalchange disease. Latex sensitivity is an immunological response to either the protein in the latex or the chemicals used in the production of latex compounds. The water-soluble protein is found in the milky sap obtained from the 'Heveabrasiliensis' rubber tree. Latex can cause allergic reaction either through Type I, IgE mediated immediate response or Type IV delayed reaction. Patient had no identified cause of either non-immune complex mediated nephrotic syndrome including malignancy or immune complex disease. Patient had no history of insect bites or bee stings, no use of over the counter medications and no recent infections[1-3]. The patient's minimal change disease underwent spontaneous remission a few weeks after it began. This is an unusual course for idiopathic minimal change disease which rarely undergoes a rapid spontaneous resolution.

Conclusion

This case represents a rare expression of latex hypersensitivity that hasnot been previously reported in English literature.The exact mechanism by which latex cause minimal change disease is not evident. Further case studies of the pathogenesis of minimal change disease following exposure to latex are needed.

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