

**Original Research Article****Effective Ayurvedic Management of Steroid Resistant Nephrotic Syndrome  
- Case Study**

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**Abstract**

*Nephrotic syndrome presents with heavy proteinuria (3.5 g Proteins/ 1.73 m<sup>2</sup> body surface area/24 hour), dyslipidaemia/ hypercholesterolemia, hypoalbuminemia, edema and hypertension. If left untreated or undiagnosed, there is progressive damage to glomeruli causing renal failure. Heavy proteinuria is the most characteristic feature of this syndrome. Several studies have noted that higher the 24-h urine protein excretion, more rapid is the decline in GFR. It may be primary or secondary to other systemic diseases. Case study: This 2 year old male child developed Nephrotic syndrome and was placed on steroids, used to relapse when steroids are withdrawn, and subsequently developed steroid resistance. He was poorly managed by modern line of treatment for last 10 years. The case had developed Cushingoid features due to long term use of steroids. This case was successfully managed by Ayurvedic treatment principles of Deepan-Pachan, Vatalunoman and Mutral chikitsa. Steroids were withdrawn gradually and completely. There was no relapse. He was free of proteinuria. His Cushingoid features disappeared. Edema and Ascites also disappeared. This case study is the example of importance of alternative medicine in treating steroid dependent/resistant cases. When modern treatment has definite limitations to treat such cases, it is ray of hope to thousands of poor sufferers of Steroid resistant Nephrotic syndrome, finding them an effective alternative of Ayurvedic treatment.*

**Keywords:** Nephrotic syndrome, Steroid resistance, Ayurvedic management, Dridamula Basti Shotha

## Introduction

Classically, Nephrotic syndrome presents with heavy proteinuria, minimal hematuria, hypoalbuminemia, hypercholesterolemia, edema and hypertension<sup>1</sup>. In this modern era today, there is a gap in our understanding of the etiology of nephrotic syndrome of childhood. The pathogenesis may be understood secondary to immune dysregulation involving Cell mediated immunity as observed in Minimal Change Nephrotic Syndrome (MCNS) occurring after a viral infection or due to atopic disorder like allergy due to Pollen, milk product, pork, bee stings etc. This syndrome is found to be associated with HLA antigen. Expansion of CD4+ count and CD8 + T cell count is seen in MCNS<sup>2</sup>.

Corticosteroids remain the mainstay for treatment of nephrotic syndrome. Based on the response to corticosteroids, children with Nephrotic syndrome may be divided into steroid-sensitive group which accounts to be 75%, that has a good long term prognosis but with risk of frequent relapses/dependence and steroid resistant group that has poor outcomes despite immunosuppression<sup>3</sup>.

The incidence of Nephrotic syndrome is 9–10/100000 in Indian children and its prevalence is 12–16/100000 children<sup>4</sup>.

## Case study

This 12 year old male child when reported to Ayurved on 12.2.2023, was found to be suffering from Nephrotic syndrome since 2013 when he was 2 year old. He was treated with corticosteroids having frequent relapses. Prednisolone could not be tapered off as he has become steroid dependent. Later he became Steroid resistant.

Patient C/o- Frequent episodes of Anasarca, Ascites,

Heavy proteinuria and Hypercholesterolemia.

His Kidney biopsy dated 31.12.2020 revealed following findings:" Kidney needle biopsy normal

on light microscopy with absent immune deposits consistent with Minimal Change Disease".

**Past history:-**H/o Upper respiratory infection at the age of 1 year.

**Personal history:-** Mentally depressed, Appetite low

Bowel habits-Constipated; Urine output-Normal-900-1000 ml/24 Hr; Sleep-Disturbed

Present line of treatment:-The child was maintained on

- Tab Omnacortyl (Prednisolone) 20 mg thrice daily,
- Tab Lasix (Furosemide ) 40 mg half BD
- Tab Rabepazole 20 mg 1 OD
- Syp Calcimax 5 ml BD
- Tab Sulphamethaxazole 800 mg + Trimethoprim 160 mg ½ OD
- Tab Telmisartan 40 mg 1OD
- Cholecalciferol Sachet one weekly for 10 weeks.

He was given Tab Cyclophosphamide 50 mg ½ OD for 3 months.

O/E:-Afebrile, Pulse-80/min, Respiration-18/min B.P.-140/90 mm Hg, Height- 130 cm, Wt- 37.8 Kg, BMI-22.37 Kg/m<sup>2</sup>. Iatrogenic Cushingoid features noted due to prolonged use of glucocorticoids<sup>5</sup>.

Edema over face including eyelids +++

Ascites ++

Edema over feet +++

RS-Air entry equal on both sides.

CVS-S1, S2 normal, no murmur audible

P/A- Shifting dullness, Ascites noted. Striations noted on abdominal wall.

Liver 1 finger palpable, Spleen not palpable.

## Investigations:-

Hb- 13.7 g/dL, TLC-18900/cmm, RBCs-5.62 mil/cmm, HCT-43.2%, Platelets-2,90000/cmm; ESR 59 mm/1Hr; Random Blood sugar- 78.59 mg%; Cholesterol-Total-382.4 mg/dL Triglycerides-347 mg/dL; S. Protein- 7.48 gms%; Albumin- 3.64 gms %, Globulin-3.84 gms %, Albumin- Globulin ratio-0.94; S. Creatinine-1.31

mg/dL, Blood urea- 38 mg/dL. C-reactive Protein- 17.6 mg/L

Serum Sodium-130 mmol/L, Serum Potassium- 4.6 mmol/L, Ionic Calcium-1.06 mmol/L

Urine- Albumin++++, Glucose -Absent, RBCs- Absent, Pus cells-3-5/ HPF, Epithelial cells-1-2/HPF,

Spot urine total Protein-404.43 mg/dL, Creatinine (Spot)-168.5 mg/dL; Protein-Creatinine ratio (Spot)-2.40

USG Abdomen:-Bulky kidneys with decreased cortical echotexture with slight change in CMD, S/O ? Nephrotic syndrome with minimum ascites with very very minimal Rt Pleural effusion.

**Treatment:-** Patient was treated by Ayurvedic conservative line of treatment as follows:-

**Deepan-Pachan:-**First of all, to boost his Agni, he was given Deepan therapy, Pippali choorna-0.5 gm in 50 ml fresh Erand Swaras (juice of castor leaves) early morning on empty stomach, for 3 consecutive days along with jaggery and Jowar roti.

Sitopaladi choorna + Avipattikar choorna ½ TSF before meal with warm water twice daily was given, for Ras-Rakta gat Pachan It was continued for 6 months with following medicines:-

Tab Gokshuradi guggul 1 TDS

Tab Charndraprabhavati 1 TDS

Gokshur Kadha 2TSF BD after meal

6 months

Tab Laghumalini vasant 1 BD after meal

Punarnavastak Quath 1TSF BD after meal

Punarnavadi Mandur 1 TDS after meal

The dose of Prednisolone was gradually tapered off in 3 months. Cyclophosphamide was also discontinued.

**Investigations after completion of 7 months of Ayurvedic treatment:**

Hb-13.8 g/dL, RBC- 4.5 Mil/cmm, WBC- 6700/cmm; Platelets-2,92000/cmm

S. Creatinine- 0.62 mg/dL; Blood urea- 21.69 mg/dL, Cholesterol total-112 mg/dL

SGPT-16.70 U/L, SGOT- 24.60 U/L, Alkaline phosphatase-69.16 U/L

Urine-Albumin-Absent, Sugar-Absent;

Microscopic-RBCs- Absent, Epithelial cells-1-2/HPF, Pus cells-3-5/HPF, Casts-Nil, Crystals- Nil, Bacteria- Nil.

**USG abdomen:- Opinion:-USG abdomen & KUB findings appears within normal limits.**

**Response to treatment:-** Within one month, his edema was reduced, Ascites was reduced. His weight was reduced by 2.7 Kg. After 3 months of treatment urine showed Nil proteins. Thus Proteinuria being, the main sign of Nephrotic syndrome, patient was free of Proteinuria. All important laboratory findings were noted to be in normal range. His appetite was improved and bowel habits became normal. After stopping of Steroids, there was no relapse. He was free from mental depression and became cheerful. You can note the dramatic change in his physical condition on viewing his photographs of before treatment, during treatment and after 6 months of treatment.



Figure 1 & 2 Before Ayurvedic treatment



Figure 3 & 4 Before Ayurvedic treatment



Figure 5 & 6 After 3 months of Ayurvedic treatment



**Fig. 7** Four months of Ayu. treatment



**Figure No. 8** After 5 months of Ayu treatment **Figure No.9** After 6 months of Ayu treatment

### Discussion

Nephrotic syndrome presents with heavy proteinuria, minimal hematuria, hypoalbuminemia, hypercholesterolemia, edema and hypertension. Proteinuria leads to Hypoalbuminemia, which causes reduced plasma oncotic pressure. This is perceived by glomeruli as hypovolemia. It activates various mechanisms such as Renin-Angiotensin-Aldosterone system, Vasopressor system, Sympathetic nervous system causing Sodium and water retention resulting in to edema. Hypercholesterolemia is caused by various mechanisms like i) Increased hepatic lipoprotein synthesis occurring due to fall in plasma oncotic

pressure. ii) Decreased catabolism of Triglycerides, LDL and Lipoproteins. In Steroid sensitive Nephrotic Syndrome, Hypercholesterolemia is transient and does not need any medications. In Steroid resistant Nephrotic syndrome cases Statin therapy is advocated having Hyperlipidemia<sup>2</sup>.

This case was maintained on corticosteroids for last 10 years as the patient has become Steroid dependent, therefore steroids could not be tapered off. Later, case became Steroid resistant and anti malignancy drug, Cyclophosphamide was continued for immunosuppression. Finally as happens in most of the cases, such case was

referred to Ayurved when case became hopeless. Due to continuous use of Steroids and its untoward effects, child had developed Cushingoid symptoms<sup>5</sup> as seen from the photograph before starting Ayurvedic treatment. Due to Ayurvedic treatment child was free from most of the Cushingoid symptoms which may be revealed in the given photographs.

**Samprapti (Pathology):-** According to Ayurved, Vata, Pitta, and Kapha doshas are responsible for maintaining the health of an individual. If even one is vitiated, then disease occurs. In the case of nephrotic syndrome, all Tridosha, as well as Dushya (Rasa, Rakta, Udaka, Mutra, and Oja), are involved, Kapha and Vata are more aggravated in this disease<sup>6</sup>. Kapha dosh pradhan Kledvridhi causes Strotorodh. That may be reflected in terms of Anemia and oliguria. The main aim of the treatment is to correct the balance of the Tridosha. Ayurveda believes that the blockage of srotas (minute passageway)/ Strotorodh in kidneys causes the nephrotic syndrome. The flow of fluids within and outside the Vrikka and the carrying of urine, is done by the mutravaha srotas. When these srotas are clogged, the incoming ones cause shrinkage and the stopping of fluid supply to the kidneys, whereas the outgoing srotas cause swelling<sup>7</sup>. In Ayurved, Nephrotic syndrome has been mentioned as Dridamula Basthi Shoth<sup>8</sup>.

Cases of Nephrotic syndrome have been successfully treated by Ayurvedic line of treatment. One 6 year old male child of Nephrotic syndrome was reported to be successfully treated by Vaidya Vinay Velankar in the year 1991-92<sup>9</sup>. But successfully treating a steroid resistant Nephrotic syndrome was really a challenge and this was done by the author in the present case, within few months of Ayurvedic treatment.

We followed Ayurvedic line of treatment with Deepan therapy, using Pippali choorna (Piper longum) along with fresh Erand Patra Swaras (juice of castor leaves/ Ricinus communis) for 3 consecutive days. Erandpatra is having Vataghna, Kaphaghna, Mutrakrichhghna,

Gulma/Bastishoolharam & Saptavidha vridhiaharam & Adhobhagharam (Rechan) properties.

**(Bhavprakash Nighantu Guduchyadi varg:60-61)<sup>10</sup>**. Pippali increases intelligence & Agni; useful in reducing Kapha, Shwas, Jwar. It cures Jirna jwar & in case of Mandagni, it has to be consumed with Gud (jaggery). With Gud it is useful in reducing cough, Ajeerna (indigestion), Aruchi, Shwas, Pandurog (Anemia), Krimi rog. **(Bhavprakash Nighantu Haritkyadi varg:53-58)<sup>11</sup>**

Sitopaladi choorna + Avipattikar choorna combination had synergistic Deepaniya and Pachniya effect. It created boosting of Jatharagni and Dhatvagni (Biological fire) .

Gokshur quath (Tribulus terrestris) and Gokshuradi guggul is best remedy for Mutrakrichha as mentioned by Sharangdhar<sup>12</sup>. Further it has Mutral (Diuretic) properties, which helped to reduce the edema. Gokshuradi guggul is used as a remedy in Panchbhautik chikitsa. Apart from Gokshur, it contains Trikatu (Dry jinger (Zingiber officinale), +Black pepper (Piper nigrum) + Pippali (Piper longum), Triphala, Nagarmotha (Cyperus rotundus), Dhamaasa (Fagonia Cretica) and Lakdi-Pashan choorna. It acts on diseases of Mutravahsrotas particularly Mutraghat and Mutra-Ashmari<sup>13</sup>.

Chandraprabha vati has Basti-gat Doshnashak properties as well as it is Shoth-nashak, Mutral (removes edema) and Balya (Nephroprotective) properties.

Laghumalini vasant acted as immuno-modulator<sup>14</sup> which has specific role in Nephrotic syndrome.

Punarnavadi mandur and Punarnavastak contained main ingredient Punarnava (Boerhaavia diffusa). It has diuretic and anti-inflammatory properties due to which it is useful in reducing the risk of inflammatory kidney diseases<sup>15</sup>. It contains an active principle, 'Punarnavine' which has Diuretic, Nephro-protective, Anti nephrotoxic and Immunomodulation properties<sup>16</sup>. Punarnavadi mandur has a specific haematonic role in correcting Iron deficiency anemia. Formulation of

Punaranavastak has been mentioned in Bhaishajya Ratnavali in following verse: Punarnava Nimb Patol Shunthi Tikta Amruta Darvi Abhaya Kashayah

Sarvang Shoth Udar Parshwa Shool Shwasanwita Pandugadam Nihanti II B.R. 42/13 This Punaranavastak formulation acts on Sarvang shoth (Anasarca), Udar (Ascites), Parshwa shool (Pleural effusion), Shwas (Asthma) and Pandu (Anemia)<sup>17</sup>. Combined use of above herbal drugs proved effective in treating this case.

### Conclusion

A steroid resistant case of Nephrotic syndrome which was poorly managed by Modern Medicine for last 10 years, was successfully managed by Ayurvedic line of treatment. This is testimony of strength of Ayurved in treating such challenging cases. We don't claim we have completely cured the case, but at least we may say that Ayurvedic line of treatment reversed the disease process to some extent, as Proteinuria stopped, edema disappeared, Cholesterol values became normal and all the Cushingoid features of untoward effects of long term use of steroids were disappeared. The case is stable, still under Ayurvedic treatment and being followed up regularly.

**Conflict of interest-** None

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