

FROM DRUG-ABUSE TO HEMODIALYSIS

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BACKGROUND

The use of party drugs is of increasing concern among teenagers and young adults. These chemicals used in small dose have a stimulating effect, but in higher doses they can trigger „flash” sensation or „flying” that can easily lead to addiction. Some of these drugs are processed with dangerous chemicals and therefore can have unexpected short term and long term side effects.

We present a case of end stage kidney disease as a result of long term drug abuse.

THE CASE

Patient who presented to the ER with one month history of fatigue, low appetite and facial edema. Initial work-up revealed elevated waste product levels, low albumin level, anemia, metabolic acidosis and hyperkalemia. Ultrasound showed normal size kidneys with hyperechogenic parenchima and mild pericardial effusion. All the data was compatible with advanced renal failure. Albumin replacement and transfusion was needed to correct the circulating volume. As his renal function did not improve on supportive therapy, hemodialysis treatment was initiated due to uremic symptoms.

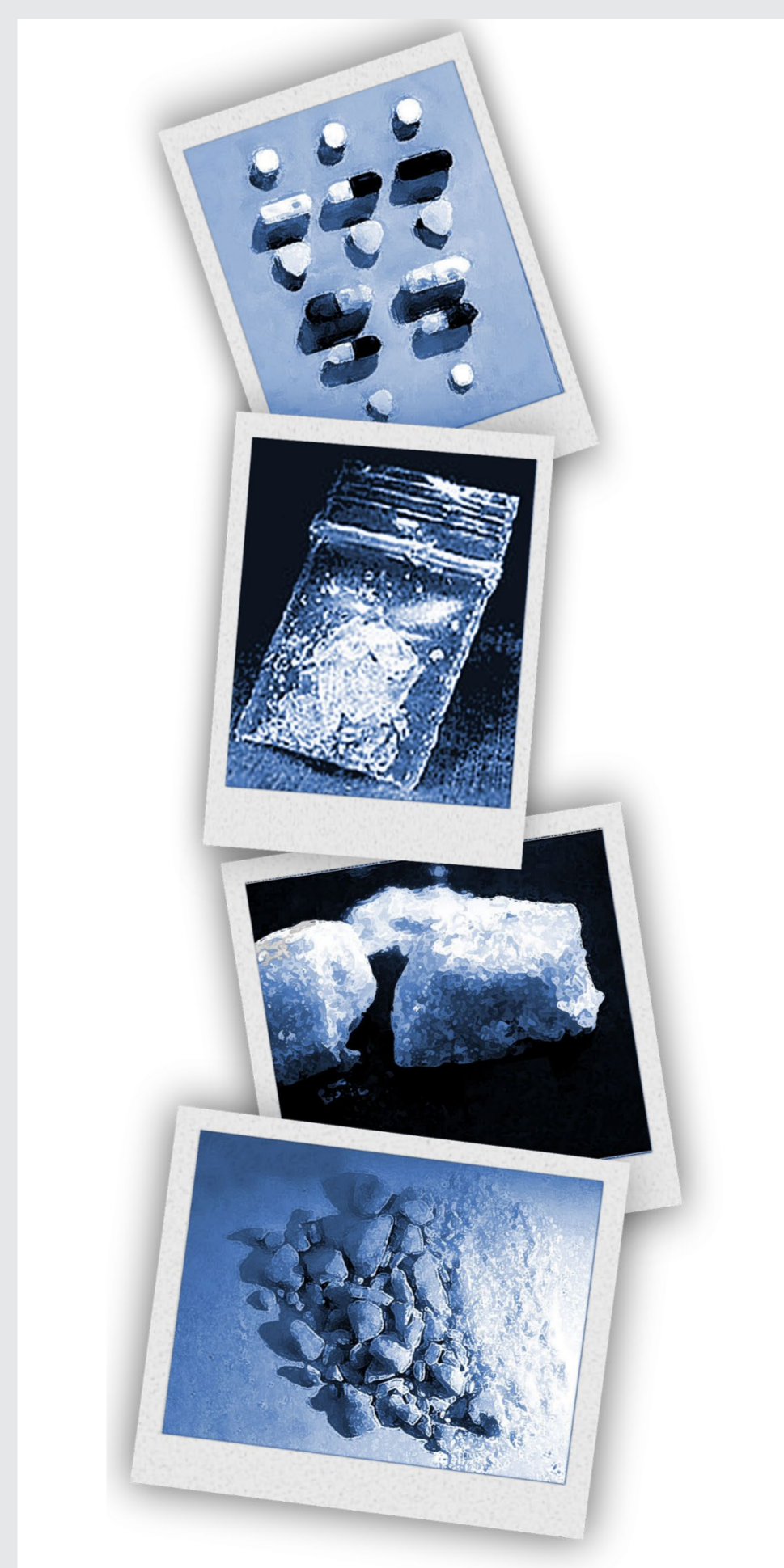
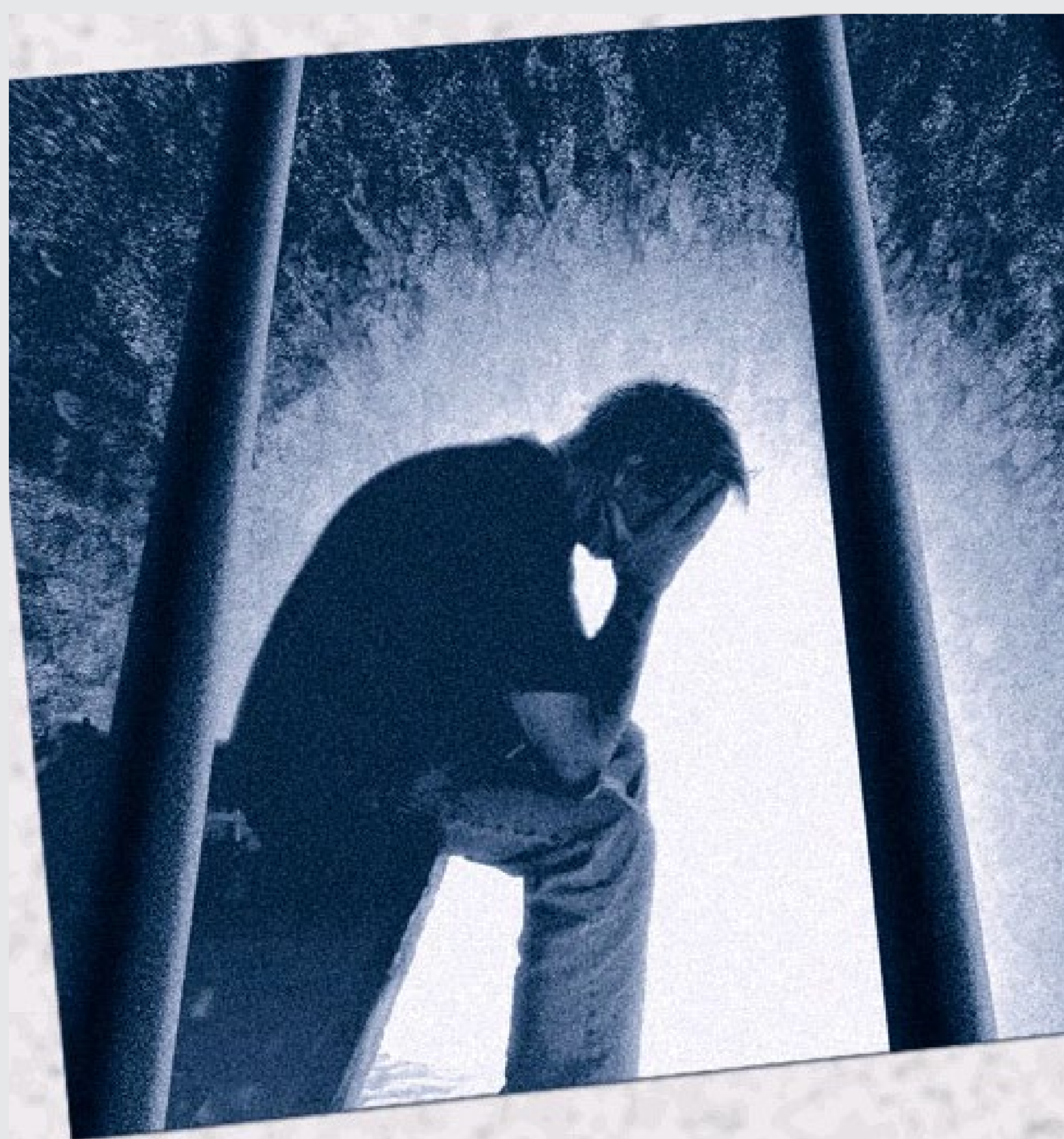
Kidney biopsy was performed and histology was corresponding with immune-complex mediated proliferative glomerulonephritis with over 20% of crescents and sclerosis. Tubular cell were atrophic and there was sclerosis of the small arteries.

Since than the patient remained dialysis dependent.

Anamnestic data revealed that patient had been on crystal meth (methamphetamine) for 2 years. He first experienced the drug at a bar and since than became addicted using the drug twice daily.

ABOUT THE METAMPHETAMINE

Metamphetamine was banned from legal use in the 1970-s. Nowadays it is produced in illegal drug labs from amphetamine or amphetamine metabolites. It is also known as „meth”, „ice” or „speed”. In order to further enhance the drug effect, other chemicals are used as „additives”. There are even home-based labs using stove-top methods to make meth out of anti-flu medications. Crystallized form of meth is easily diluted in water or alcohol so it can be sniffed or even injected intravenously for faster and stronger effect.



NEPHROTOXIC EFFECT OF METH ABUSE

Methamphetamine acts mostly on the central nervous system, but regular use of meth can also lead to kidney injury with 2 different pathways.

When higher dose is used to provoke the flash, it also causes cardiovascular symptoms with high blood pressure, tachycardia and severe peripheral and parenchimal ischemia. Regular abuse can lead to repeated ischemic injury of the kidney tissue.

The other mechanism is the toxic effect of the „additives”. Long term use of meth can lead to tubular damage caused by or glomerular deposition of these substances.

CONCLUSION

Although there is no direct evidence, it is most likely that the drug abuse could lead to the severe kidney damage in this case. Signs for both mechanisms of the kidney injury were present on the biopsy, immun-complex deposition in the glomerular basal membrane and chronic ischemic injury of the interstitium.

Our patient is off the meth for more than 2 years now. He remained dialysis dependant and mental damage due to the drug abuse has also remained with impaired cognitive functions.

