

## 7.1.5 PRESENCE OF HIGH LEVELS OF ARSENIC IN INTERNAL ORGANS OF DECEASED PATIENTS WITH CHRONIC KIDNEY DISEASE OF UNKNOWN AETIOLOGY (CKDu) :THREE CASE REPORTS

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**Introduction:** Chronic kidney disease of uncertain aetiology (CKDu), prevalent in the main rice cultivation regions under ancient irrigation system in Sri Lanka, has reached epidemic proportions over last two decades and it is considered to be one of the most important emerging health crises in the country. Over 10,000 patients in the region are currently being treated for CKDu.

**Case reports:** Biopsy-proven three CKDu patients (two males), aged 59, 55 and 62 years, expired at Padavi Sripura divisional hospital, were subjected to pathological autopsy. There was no known history of arsenic poisoning or any past history of diabetes, hypertension etc. related to them. All the bodies were in a fresh state.

**External examination:** There were no specific skin lesions other than spotty pigmentations in palms and soles.

**Internal Examination:** Kidneys have shown marked granulation and contractility. Severe cortical loss was the cardinal feature. Kidney capsules were easily stripped off from the cortical surface, which was characteristically seen in both cases. A Significant diffuse, small, fluid filled vesiculation was observed in both thyroid glands. Areas of Grey coloured discoloration were noted in lower poles of the kidneys, liver, spleen and in the wall of the rectum.

Arsenic contents of the internal organs were investigated using Atomic Absorption Spectrometer. Higher levels of arsenic were detected in kidney ( $213.5 \pm 37.1 \mu\text{g kg}^{-1}$  -  $275.3 \pm 45.8 \mu\text{g kg}^{-1}$ ), liver ( $264.9 \pm 45.8 \mu\text{g kg}^{-1}$  -  $295.8 \pm 40.1 \mu\text{g kg}^{-1}$ ) thyroid ( $187.2 \pm 44.6 \mu\text{g kg}^{-1}$  -  $234.1 \pm 35.3 \mu\text{g kg}^{-1}$ ), Spleen ( $155.6 \pm 35.5 \mu\text{g kg}^{-1}$  -  $173.6 \pm 33.91 \mu\text{g kg}^{-1}$ ) and in rectum ( $87.2 \pm 14.6 \mu\text{g kg}^{-1}$  -  $194.1 \pm 25.3 \mu\text{g kg}^{-1}$ ).

**Conclusion:** Arsenic content in the internal organs of the three CKDu victims were ten to twenty times higher when compared with the previously observed normal values for south Asian population by Muzumder in 2000 (20-100  $\mu\text{g/kg}$ ). Arsenic levels were high in the samples obtained from grey coloured areas when compared with the samples obtained from other areas in the same organ. CKDu is not a definitive diagnosis as its underlying cause is not known yet. Therefore, it is mandatory to subject deceased patients to complete medico-legal autopsy including histopathological and toxicological investigations for the confirmation of observations made in the present study