majority of Nephrolithiasis conditions.In future, there may be a decision support system utilizing the concepts of deep learning for easy and faster processing of the image thereby enhancing the diagnostic efficiency of Nephrolithiasis detection on CT and Ultrasound Images[21]

VI. CONCLUSION

It has been learnt that Kidney stone detection using Ultrasound Imaging is independent of the composition of stones. This technique is capable of identifying uric-acid stones as well as calcium stones. In the case of Ultrasound imaging, it is not always possible to detect small stones. Unlike ultrasound, CT exposes patients to significant amounts of radiation. The low dose-CT in conjugation with deep learning technique can help improve the quality and resolution of the scan. The ultrasound imaging technique is favoured in the case of pregnant women and people sensitive to IV contrast. Hence, it is recommended that Ultrasounds have to be used for preliminary diagnosis subsequently through CT if the medical practitioner senses it is necessary.

Advances in CT, ultrasonography, KUB radiography and MRI technologies are continuing and are likely to improve all modalities in the future. At present Artificial Intelligence based algorithms are evolving which could improve efficiency. The present trend is the usage of deep learning algorithms for radiographic and sonogram images for Nephrolithiasis detection. The proposed AI based technique discussed in the section 4 when implemented will be promising for faster detection and analysis of kidney stone and serve as the decision support system for the Physicians as well as the radiologists.

In future deep learning can be employed for detecting kidney stone composition during endoscopy. This paves the way to integrated endoscopic and laser systems that automatically provide laser settings based on stone composition recognition which could improve surgical efficiency.Soon, algorithms may be developed to assist in deciding on the best approach for imaging patients.

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