



A New Method of Directing Radiographic Grids for Percutaneous Renal Puncture

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Received: 10 July, 2022, Manuscript no. aeb-22-81590; **Editor assigned:** 12 July, 2022, Pre QC no aeb-22-81590 (PQ); **Reviewed:** 18 July, 2022, QC no aeb-22-81590 (Q); **Revised:** 20 July, 2022, Manuscript no. aeb-22-81590 (R); **Published:** 27 July, 2022

ABSTRACT

This in-vitro study compares a revolutionary radiographic grid aiming device to the traditional "bull's eye" puncture approach to see which is more effective for percutaneous renal puncture. This new gadget targets using two radiopaque rings, which is somewhat similar to how gun sights work. The tool is made to make the "bull's eye" puncture technique easier and more precise. We used a pig kidney within a chicken carcass as the study model and contrasted this device to the traditional "bull's eye" piercing procedure. Two first-year residents punctured the target porcine calyces sequentially using the radiographic grid aiming device (Group A) and the traditional bull's eye approach (Group B). Data that was relevant was gathered and examined. The overall success rate for renal puncture did not increase as a result of using the innovative radiographic grid aiming equipment. It did, however, have the benefit of allowing for more accurate puncture with fewer attempts. It might be helpful as a training tool. Additionally, it might be useful for surgeons who are new to percutaneous renal puncture.

Keywords: Immunosenescence, Mice

INTRODUCTION

For bigger kidney stones, Percutaneous Nephrolithotomy (PCNL) is the widely used therapeutic option. The first and most important step in PCNL is an exact calyceal puncture. A good calyceal puncture should result in the least amount of damage necessary to create a nephrostomy route, full removal of the calculi, and few sequelae. The desired calyx's papillary's center should be the target of the puncture. On the other hand, a poor puncture could cause kidney damage and significant bleeding, which would affect the overall success of the operation and the patient's recovery. The fundamental technique typically taught to beginners is the "bull's eye" technique. A difficult endourological procedure is PCNL. The first and most important stage in PCNL is an accurate puncture. Even for those with the most experience, it can be difficult. Under fluoroscopic, ultrasonographic, or combination guidance, the puncture can be carried out. Fluoroscopic guided puncture is still the go-to method at the moment. The "bull's eye" and triangulation techniques are the most often utilized fluoroscopic-guided puncture methods. The somewhat steep learning curve for precise percutaneous renal puncture discourages many urologists from using this technique. To increase renal puncture accuracy and reduce the learning curve, the radiographic grid aiming device was created.

There is an ongoing disagreement over whether papillary puncture is necessary for PCNL. The best location for renal access is regarded to be in the papilla's middle. Anatomical research reveals that punctures through the papillary represent the least risk to the kidney and its circulation, and it is assumed that it is the shortest track through the renal parenchyma.

One of this study's flaws is that it was conducted at only one institution. Professor Wan is also a member of our visiting faculty. Even though there is no financial conflict of interest, there could still be accidental bias in his favor. Once this technology is made available for purchase, additional research may be useful.

CONCLUSION

With the radiographic grid targeting device, effective punctures can be made with more accuracy and with fewer attempts. It might be helpful as a training aid. Additionally, it might be advantageous to surgeons who are new to percutaneous renal puncture.