An Apparatus and Method for Percutaneous Access to Kidney

ABSTRACT

This invention relates to a multi-imaging alignment and robotic system for percutaneous access to kidney(PAK). Coupled with this invention, a method is introduced to show how to use this system in the percutaneous nephrolithotomy (PCNL) surgery. CT scanning is before the surgery to check the surgical organization and make a puncture plan. The system following the predetermined plan with assistance of optical tracking device and B probe to match the real situation with the plan and monitor the needle trajectory in real time. This invention combines CT scanning images and optical tracking device real-time tracking images, to identify the surgical site accurately and intuitively. This invention also uses a robotic positioning module to achieve a wide range of puncture angle, and the needle can insert into the lesions in vertical or any cone angle in a certain range.

Fig1.