SHORT COMMUNICATION

Future of virtual autopsy in India

Rastogi AK,[1] Kumar S.[2]

Associate Professor,[1] Additional Professor.[2]
1. Department of Forensic Medicine & Toxicology, All India Institute of Medical Science, Patna.
2. Department of Radiology, All India Institute of Medical Science, Patna.

Abstract:

Presently in India virtual autopsy service is not provided by any center. All India institute io Medical Science, New Delhi is trying to establish virtual autopsy center, they have got the infrastructure established for research purposes. In India many autopsy centres are trying to learn and explore the training related to virtual autopsy, first basic training done national forensic science university at Gandhinagar, Gujarat. Large money, training, and legal hurdles are the main barriers. Initial stage institute of national importance has funding ability to start, then slowly it will on the public demand, it would be started most of the center. As per legalities, the legal system easily adapts the scientific use of technology in the court of justice. X ray examination report taking consideration in various court judgement, indication of the virtual autopsy report is considerable in the court. India has presently two autopsy centers have their own CT scan machine they are utilizing learn for the virtopsy, 1st in AIIMS Delhi and second in St John's hospital Bengaluru, in future it's going to established in many autopsies center of India. The possibility of First will be central institute then peripheral institute. In 4 to 5 years, virtual autopsies will be implemented in numerous autopsy centers.

Introduction:

The virtual autopsy concept was invented by Richard Dirnhofer, former Director of Forensic Medicine, Berne, which was then continued by Michel Thali and his colleagues at the University of Berne's Institute of Forensic Medicine, situated in Switzerland.[1] Virtual autopsy or Virtopsy word is derived from the Latin word virtus, which means, "useful, efficient, and good.[2] In conventional autopsy we can observed by necked eye, can touch the organs, can see the colour change, feal the hardness of the any abnormalities observed. In virtual autopsy we cannot observed colour, hardness, smell of the organs. Virtopsy was to detect forensic findings in dead bodies using radiological techniques such as CT and MRI, as surface documentation by 3D photogrammetry which was based on optical surface scanning. Findings observed by this machine by help of 3D surface reconstruction, Minimum intensity projection, maximum intensity projections, volume rendering techniques etc.

Feasibility: Presently everyone acquainted with the machines and technology in hospitals. life is going very easy by use of machines and technology. Examination of body by MDCT multidetector tomography, much less time taking technique, it hardly takes 5-10 min to scanning of the whole body. Mutilated, decomposed body, polytrauma cases even minute injury of unapproachable area of body part, finding we can observe very easily in machine. In virtual autopsy we get forensic records and its keep for longer

time. The results provided are highly sensitive, specific, and accurate.[3] Problems of the post-mortem examination are commonly mistakes or missed minor injuries in conventional autopsy, that are sufficiently well known.[4] Various religious, cultural, and other Objections to invasive techniques.[5]

Problems and solutions:

India is a developing country establishment of autopsy centre is Costly business. To start a virtual autopsy centre required approx. ten crores Indian currency, initially very few centres will be able to be establish. In future usability and public Demand push the multiple centre establishment. To start a virtual autopsy centre training also a hurdle, 1st to produce resource persons then they can facilitate training at multiple centres. Presently Basic training started at some centres in India. We have started walking towards the virtual autopsy in India.

In Indian, related to this speciality providing degree course of MD forensic medicine which must be oriented to forensic radiology. In future it will grow as MD forensic radiology. Other core of forensic medicine is forensic pathology which also grow in different direction in future. For the large population, required large number of autopsy centre also hurdle of application of virtual autopsy in pan India. Initial virtual autopsy may start at few reputed centres, then it will be expanding the wide range. Acceptability of virtual autopsy report in court, as scientific report like x Ray and other report accepted by the court.

Discussion:

In Indian scenario one study suggested that only 15.4% doctors of autopsy surgeon know the complete procedure of Virtual Autopsy. Major problem to start virtual autopsy is financial support. To start a virtual autopsy centre required large money , India is a developing country where CT Scan MRI not easily

Corresponding Author
Dr. Ashok Kumar Rastogi
Email : ashokforensic@gmail.com
Mobile No.: +91 9300030477

available for live patients then how easy for deceased.[6] The international humanitarian law states that human rights are also applicable for the dead as live person.[7] Conventional autopsy mutilate the deceased, which is considered as taboo in many cultures.[8] The virtual view can also be used in the field of histopathology which can help in a non-invasive, non-destructive, and 3D examination of naturally.[9] Virtual autopsy in the alternative of conventional autopsy? To know the answer of this question, A research team from the Institute of Forensic Medicine, University of Berne, Switzerland done a project on virtopsy as an alternative to the conventional autopsy in the year 2006 and they found that it's not absolutely but yes.[10] Use of virtual autopsy technology some flaws not possible to physiological senses of anatomical pathologist like touch, feel, texture and smell senses.[11] It is very easy to identifies the identity, detects foreign bodies and easy demonstration of observations of virtual autopsy in the court of law.[12] At present, there are many institutions in the world they have recognized the feasibility and developed facilities and techniques for the post-mortem investigation and that have invested efforts in its establishment and implementation. For example, the Office of the Armed Forces Medical Examiner (Washington, DC; Dover, Del), the Institute of Forensic Medicine (Copenhagen, Denmark), and the Victorian Institute of Pathology (Sydney, Australia) have already installed their own CT scanners. In future, the use of CT technology will become more widespread at distinguished institutions of forensics and pathology. Many cases virtual finding in form of X ray report taken in consideration in various court judgement in India.[13,14] Without X ray claiming fracture and compensation court refused.[15]

Conclusion:

In India many autopsies center trying to learn and exploring the training, first basic training done national forensic science university at Gandhinagar, Gujarat. Cost issues, training, and legal hurdles are the main barriers. Initial stage institute national importance has funding ability to start then slowly it will on public demand will start most of the center. As per legalities, the legal system easily adapts the scientific use of technology in court of justice. In India also presently two autopsy centers have their own CT scan machine they are utilizing for the virtopsy, in future it's going to established in many autopsies center of India. The possibility of First will be central institute then peripheral institute. In four to five years, virtual autopsies will be implemented in many autopsy centers.

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