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Role of robotic telepathology for frozen-section diagnosis

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Abstract

Frozen section (FS) diagnosis has been used as an important factor in intraoperative decision making. FS are more difficult to interpret than examination of formalin-fixed, paraffin-embedded sections. Nevertheless, FS is regarded as an accurate means of diagnosis during surgery and often has a significant influence on the surgical operation being performed. Robotic Telepathology is the practice of digitizing histological or macroscopic images for transmission along telecommunication pathways for diagnosis, consultation, or continuing medical education. In dynamic telepathology, the consultant examines a slide remotely with a robotic microscope that allows him or her to select different fields and magnification powers. Static telepathology relies upon images sent by the referring pathologist. Because the field selection is accomplished by the consultant, the information that he or she obtains is the same as he or she would obtain at the microscope in person. One of the most promising applications of telepathology is intraoperative consultation to be allowed with pathology support located elsewhere, allowing surgeries requiring an intraoperative histopathological diagnosis without a pathologist on site, thereby preventing medical errors, reducing costs, and increasing quality. Also to submit histological slides to a remote pathologist requires packing and postage expenses, Additionally, increasing documentation between countries is necessary to ensure the lack of pathological risk associated with the submitted material which can be avoided by telepathology and also it can reduce the travel time of the pathologist, which is expensive, nonproductive professional time. Hence, the provision of pathologic care using telepathology for routine, emergent and FS diagnosis can support primary and second-opinion pathology diagnosis throughout the world.

Introduction

Telepathology is the practice of digitizing histological or macroscopic images for transmission along telecommunication pathways for diagnosis, consultation, or continuing medical education. In dynamic (real-time) telepathology, the consultant examines a slide remotely with a robotic microscope that allows him or her to select different fields and magnification powers. Static telepathology relies upon images sent by the referring pathologist. Weinstein and colleagues reported the progress of telepathology previously. Singson et al. showed the first use of telepathology via the Internet in 1989. In the same year, investigators in Norway were the first to provide intraoperative frozen section (FS) services to several rural hospitals via telepathology. Since that time, there have been several articles published in the literature. The number of telepathology abstracts indexed in MEDLINE has grown from <5 in 1986 to nearly 100 in 2000. Several of these studies deal with a single organ system or in practices with a limited scope of pathologic specimens

Biography

Anshoo Agarwal is working as a Professor and In-charge of Pathology Department (female campus), Northern Border University, Kingdom of Saudi Arabia. She has completed her M.B.B.S from King George's Medical College. She had been the Discipline Coordinator (Pathology Department) at University Technology MARA, Malaysia. She is a Member of many associations like Indian Association of Pathology and Microbiology, International Academy Pathology, Indian Society of Hematology & Transfusion Medicine, Emirates Medical Association Pathology Society, International Economics Development Research Center etc. She has more than 100 publications. She is the Editorial Board Member of three journals and Reviewer of many journals. She had organized many national and international CME's, workshops and conferences.

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