



Ivica MILOSAVLJEVIĆ<sup>1</sup>  
Miloš KOSTOV<sup>2</sup>  
Miroslav ŠTRBAC<sup>1</sup>  
Vujadin TATIĆ<sup>1</sup>  
Srbislav ILIĆ<sup>1</sup>  
Jovan DIMITRIJEVIĆ<sup>1</sup>  
Zlatija TRAJKOVIĆ<sup>1</sup>  
Radojka BOKUN<sup>1</sup>  
Željka TATOMIROVIĆ<sup>1</sup>  
Siniša RISTIĆ<sup>1</sup>  
Petar SPASIĆ<sup>3</sup>

<sup>1</sup>INSTITUTE OF PATHOLOGY AND FORENSIC MEDICINE,  
MILITARY MEDICAL ACADEMY, BELGRADE, YUGOSLAVIA

<sup>2</sup>DIVISION OF PATHOLOGY, MILITARY HOSPITAL, NIŠ, YUGOSLAVIA

<sup>3</sup>DACON, BELGRADE, YUGOSLAVIA

# Telepathology in Yugoslavia: Where we are, what in the future?

## ABSTRACT

The permanent communication with experts or knowledge banks of representative cases is obviously needed, and increasing, every day, i.e. in tumor diagnostics (malignancy criteria, tumor classification, staging and gradation, ...), in transplantation pathology (determination of the host rejection reaction), etc. Internet and telepathology provide the fastest possible way of finding a solution. For more than one decade, telepathological frozen-section services are successfully provide in Norway. Expert consultation is routinely providing in Germany, France, Italy and other advanced countries, using the Internet standard or specialized software programs. Since October 1997, we have started with development and practicing telepathological services at the Pathology and Forensic Medicine Institute of the Military Medical Academy. First, we are connected with the Pathology Institute of Clinical Center Niš. Since April 1998, we have been routinely providing telepathological services for Pathology Division of Military Hospital Niš. For two years we realized 74 teleconsultations, 32 histopathological and 42 cytological. Internet also gives us a possibility for consulting world reference centers. We have been using this possibility for consulting AFIP and also for telecollaboration with the Pathology Institute of the University Udine in Italy. We think there are conditions to realize the Yugoslav telepathological network project.

**KEYWORDS:** Telepathology + trends; Yugoslavia; Internet

## INTRODUCTION

Every pathologist in his own routine diagnostic activity has many concrete requests which demand concrete responses with an aim to make adequate decision and he's always time limited. The permanent communication with experts or knowledge banks of representative cases is obviously needed, and increasing, every day, i.e. in tumor diagnostics (malignancy criteria, tumor classification, staging and gradation,...), in transplantation pathology (determination of the host rejection reaction), etc. About 180 million of histological slides per year are diagnosed in communication among pathologists and clinicians. Morphologic diagnoses aren't often precise enough. They are difficult cases for diagnostic potential of different histopathological laboratories.

Address correspondence to:  
Dr Ivica Milosavljević, Institute of Pathology and Forensic Medicine, Military Medical Academy,  
Crnotravska 17, 11000 Belgrade, Yugoslavia

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Communication among all participants in the diagnostic process is very important in those cases. Internet and telepathology provide the fastest possible way to find a solution.

## MATERIALS AND METHODS

Telepathology is the practice of histological and or macroscopic images for transmission along telecommunication pathways for diagnosis, consultation or permanent medical education. The basic system comprises an automated microscope mounted with a CCD camera, a lensless scanner, a desktop computer with Windows 9x or NT operating system, a telecommunication link between sending and receiving sites and a workstation at the receiving site with a high-quality monitor to view images. For more than one decade, telepathological frozen-section services have been successfully provided in Norway. Expert consultation are routinely providing in Germany, France, Italy and other advanced countries using the Internet standard or specialized software programs (2). Since October 1997, we have started with the development and practicing telepathological services at the Pathology and Forensic Medicine Institute of the Military Medical Academy. First, we have connected the Pathology Institute of Clinical Center Niš. Since April 1998, we have routinely been providing telepathological services for the Pathology Division of the Military Hospital Niš.

## RESULTS

For two years we have realized overall at 74 teleconsultation, 32 histopathological and 42 cytological. Also we have tested the reliability of telepathologic diagnostic and we have found that the concordance between telepathology and on-site diagnostics are more than 90%. Since April 1999, we have been providing these services over Internet (3). The Internet also gives us a possibility of consulting different world centres. We have been using this possibility for consulting AFIP and also for telecollaboration with Pathology Institute of University Udine in Italy.

## CONCLUSION

Finally, telepathology and internet are offering us a opportunity of communication and exchanging information and knowledge in all fields of the medical science. We think there are conditions for realizing the Yugoslav telepathological network project with basic aims: **consultation among pathologist in difficult and unusual cases.**

Quick and simple way of exchanging expert opinions with pathologists all over the world: experts participation, from different institutions, in education with slide-seminars and conferences; exchanging data and experiences in microdensitometry and morphometry with specialized centers for quantitative pathology; simple way for the quality control and control of diagnostic accuracy, as well as the of slide preparing and staining procedures; interdisciplinary collaboration and clinical-histopathological consultations in different fields of medicine and among remote medical institutions.

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