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Introduction and Organization

Department of Pathology and Diagnostic Pathology is responsible for the practice of diagnostic pathology, education, and research in conjunction with Division of Diagnostic Pathology of the University Hospital*. Our aim is the construction of “pathology as clinical medicine” as well as “next-generation pathology for translational research”.

Dr. Ushiku and Dr. Ushiku-Shinozaki worked at Massachusetts General Hospital, USA as a visiting researcher in 2012. Associate Professor, Dr. Shumpei Ishikawa, moved to Tokyo Medical and Dental University as Professor of Department of Genome Pathology, Tokyo, on October, 2012. Dr. Hino moved to Department of Pathology, Cancer Institute, Japanese Foundation of Cancer Research, on January, 2013, and Dr. Aya Ushiku returned to the job on February.

Five postgraduate students (Abe, Ito, Morita, Yoshimoto, and Miyazaki) finished the course and received Ph.D. In the new fiscal year, 2013, five new students will enter the postgraduate course, and there will be 17 postgraduates (including one foreign student).

We are responsible for the pathology practice of the University Hospital, and are carrying forward the

morphology-based research targeting human diseases. As for the education for the medical students, we take charge of the following courses; General Pathology Course for the 1st grade students in collaboration with Department of Molecular Pathology, Systemic Pathology for the 2nd grade, Clinical Clerkship for the 3rd grade, and Bedside-learning (BSL) for the 4th grade students. Programs for postgraduates and junior residents are also included in our education activities.

The year 2012 was the 125th anniversary of the Department of Pathology. We held the memorial lecture meeting on May 19, and speakers were Dr. Tetsuichiro Muto, President Emeritus of Cancer Institute Ariake Hospital, and Dr. Kohei Miyazono, President of Postgraduate School of Medicine, the University of Tokyo. We also invited Dr. Kadowaki, the President of Tokyo University Hospital as a main guest, and had the cerebration party.

Clinical activities (diagnostic pathology and autopsy)

Together with Division of Diagnostic Pathology, we are responsible for the pathologic diagnosis and autopsy in the University Hospital (see the corresponding section of Division of Diagnostic Pathology).

Surgical pathology conferences are regularly held with each clinical division, and the cases of various tumors are discussed, including thoracic organs, liver and pancreato-biliary tract, urology, gynecology, breast, and orthopedics, as well as biopsy cases of kidney, skin and GI tract.

Clinico-pathological conferences (CPCs) for two autopsy cases are held every month in the hospital. Both CPCs and weekly autopsy conferences are useful for the education of clinical residents. Digest versions of CPC slides are now open in the hospital, and we also started e-learning programs for interns to facilitate the understanding of the CPC contents. (Dr. Takazawa and Dr. Ikemura).

A model project for the survey analysis of deaths related to medical treatment (DRMT) has been in operation since September 2005, and we continue to be a member of the autopsy inspection of the project.

Teaching activities

We take on General Pathology Course for the 1st grade of undergraduate students, especially in its morphological field.

Each class of Systemic Pathology Course and exercises are held in parallel with that of Systemic Medicine Course. Handouts are available in every half course of the pathological exercises, and all slides used in the course are accessible on our website as virtual slides (digital images of the slides).

In BSL for 4th grade medical students, following courses are included; autopsy pathologic practices with a case presentation for paired students, surgical pathologic practices using various tumor sections, and a tour of the pathology laboratory. The past examination questions for graduation and Systemic Pathology for the second grade students are referred to the website. Two students chose the clinical clerkship course for 3rd grade medical students.

As for the free quarter program, we received four students of M0 and three of M1 in this fiscal year.

We also set up the lecture series of tumor pathology for the Cancer Profession Training Program in postgraduate school.

Research activities

The first major theme is “chronic inflammation and neoplasms”, especially Epstein-Barr virus (EBV) associated gastric carcinoma (GC) (Drs. Ushiku, Hino, Ushiku-Shinozaki, Matsusaka, and Kunita). We are focusing on the mechanisms of abnormalities in CpG island methylation and microRNA molecules in the development and progression of EBV-associated GC (ref.10). Mutations of ARID1A gene, a constituent protein of chromatin remodeling complex of SWI/SNIF, were reported in various types of cancer, and the frequencies were rather high in two GC subtypes, EBV-associated and microsatellite unstable GC. We demonstrated by immunohistochemistry that the mutation occurs characteristically in an early stage in EBV-associated GC, which is different from other types of GC (ref. 2).

The second major theme is ‘traslational research pathology’. We are engaged in search of target molecules for cancer therapy by global analysis of

expression profiles of various cancers, in collaboration with Research Center for Advanced Science and Technology (RCAST), the University of Tokyo. In addition, we take part in a global COE program, "Comprehensive Center of Education and research for Chemical Biology of the Diseases", in which we are investigating the morphological analysis of gene expression abnormalities of the key molecules for several diseases (Dr. Yamauchi, ref. 38).

Dr. Ishikawa's group is engaged in developing the precisely analyzing methods for genome information to establish a new field of pathology. They introduced a quantitative analysis using digital PCR for the investigation of Merkel cell polyoma virus, which was recently discovered from human tumors (ref. 28).

The third theme is to re-evaluate the disease entities and tumor entities from the standpoint of classical histopathology. Dr. Ushiku reported that claudin 6 is expressed in germ cell tumors and subsets of cancers of stomach, lung and ovary (ref. 32).

Dr. Morikawa accomplished a significant achievement in molecular epidemiology of colon cancer in USA, and participated in the basic research of microenvironment of cancer, demonstrating the contribution of cancer-associated fibroblast in drug resistance of cancer (ref. 31). Dr. Tanaka received the 100th Anniversary Memorial Award for Young Pathology Investigator for her thesis research about the carcinogenesis of the pancreas.

The research works closely related with pathology practice are described in Diagnostic Pathology Division.

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