

Application Experience of Quality Feedback in Standardized Practical Skills Training for Clinicopathology Residents

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Abstract: In recent years, there are increasingly more standardized trainings for doctors based on the standardized training outline that is suitable for different grades. Hierarchical training has gradually formed a relatively sound training mode. In reflecting students' learning effect, there is a need for an ideal quality feedback system in the standardized practical skills training for clinical pathology residents. This feedback system can help students achieve the training objectives through understanding and grasping the learning content.

Keywords: Quality feedback; Clinicopathology; Residents; Standardized practical skills training

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1. Introduction

The standardized training of residents is an important part of continuing medical education. It plays an important role in cultivating high-level medical talents and improving medical quality^[1-3]. Clinicopathology concerns the diagnosis and treatment of diseases. As an important means to study the occurrence, development, and prognosis of diseases, it provides scientific basis for the diagnosis and treatment of diseases^[4,5]. At the same time, consulting services are provided within the scope of clinical applications in clinicopathology, including interpretation and recommendations for appropriate examination and treatment, which has important clinical significance. Therefore, a high-quality and sustainable clinical pathologist training is an important guarantee for improving medical quality^[6].

Theoretical assessment and skill assessment are equally important in the standardized training and assessment of clinical pathology residents. One of the important tasks is to improve students' skills and operation level. At the same time, skill operation is also a necessary professional skill for a qualified pathologist. Pathologists with solid theoretical foundation and excellent professional skills are needed to build a bridge between doctors and patients as well as strive to achieve the "gold standard" for clinical diagnosis^[7,8]. Providing quality feedback to evaluate the pathology skill level of an individual is the focus of practical skills training. Therefore, this paper shares the quality feedback practice of the Department of Pathology in Baoding First Central Hospital as a teaching base for clinical pathologists in the training of practical skills.

2. Real-time feedback

As two major parts in the standardization of clinicopathology (material acquisition training and image

reading training), students are required to carry out practical training. The students are arranged in shifts, rotating between the material room and the reading room. Students in the lower grades mainly study the diagnosis of common and frequently-occurring diseases; in addition to knowing the common and frequently-occurring diseases, senior students also need to pay attention to the diagnosis of complex and challenging cases.

A teacher has been dedicated to guide and oversee the daily material collection process, provide real-time guidance for students who do not understand, identify students' weak links, conduct quality feedback meetings every week to address the problems faced by students, and strengthen the training.

In the work of reading films, each student is guided by a special teacher, who would give detailed guidance on the diagnosis, diagnostic criteria, differential diagnosis, immunohistochemistry, molecular detection instruments, and the standard report format. Meanwhile, for classic cases, students are taught using the microscope to enhance their learning effect.

3. System feedback

The Langka pathology system software is used to train students to collect materials and read films. Every month, data would be exported, and detailed statistics on the amount of materials collected and films read by each student can be generated. At the same time, statistics on the problems faced by students in collecting materials and reading films can be generated, so as to understand the components that need to be strengthened in training.

The monthly quality feedback meetings are held to summarize the detailed data, quantify the sampling amount and reading amount of each student in the month, refine the problems in the sampling and diagnosis, identify the students' weak points, focus on where the problems occurred, strengthen the training, and repeat the cycle.

The quality feedback of the current month is compared with that of the previous month. If the problems have been resolved, the focus would be on improving them; if there is no improvement, the direction would be on analyzing the reasons, changing the "strengthening" method, and continuously improving until the problems have been resolved.

4. Student discussion

Monthly seminars are held for students, covering various themes, including work, study, life, treatment, safety, and other topics. When it comes to work, the problems should be sorted out and the specific reasons for the problems should be known, such as failure to learn, fail to understand, fail to remember, or other reasons. For example, when collecting materials from lectures, if a student feels that he or she has learned but still do not know how to perform in practice, this means that the student does not have enough practical experience, suggesting that the student should practice more; if the student has no idea how to read a film, this means that the student has not mastered the basic knowledge, thus suggesting that the student should strengthen his or her basic knowledge independently. At the same time, when teaching using the microscope, the students should be careful and actively ask questions to review. In the monthly seminars, basic knowledge is discussed and shared among the students for them to further consolidate and review, so as to ensure that they do not fall behind.

5. Strengthen independent learning

In residential training, any form of teaching supervision can only be the icing on the cake, helping students to better understand and remember as well as to improve the learning effect. The most important aspect is students' active and autonomous learning. In practical learning, students should consult the teacher if they do not understand a topic.

There are three types of specimens: small biopsy specimens, tumor excision specimens, and large specimens. According to different samples, there are different standards. When receiving any specimen, it is necessary to check whether the patient information is correct and whether the application form for pathological examination is complete. In addition to describing the size and texture of small specimens, they should also be painted to make it easier to observe the tissue position when making slices. In tumor excision specimens, in addition to size and texture observation, the tumor is excised to make a cut surface every 5 mm, and each section is carefully observed for the texture and color to determine the presence of hemorrhage, necrosis, cystic degeneration, and other pathological processes. Two to three pieces from different slices should be taken. Different tissue types have different sampling requirements. For example, a skin tumor needs to be incised by “ten,” and the long-axis, short-axis, and basal incision margins must be collected; breast-conserving specimens need to be analyzed on the upper, lower, inner, outer, surface, and base; the six incision margins are painted with ink in different colors; for wedge-shaped resection of the lung, the lung parenchyma margins are excised, and the surgical margins are preserved as much as possible; ink is applied to the pleura at the lung resection margin and adjacent to the tumor for material collection. There are different sampling standards for large specimens according to different systems. For example, when a mass is located in the duodenal papilla, the relationship between the mass, duodenum, common bile duct, pancreatic tissue, and the resection margin of each tissue should be paid attention to; in the sampling of breast cancer specimens following neoadjuvant chemotherapy, it is important to note that if there is no definite tumor, the breast tissue should be fully sampled to determine the effect of chemotherapy; in the sampling of large prostate cancer specimens, the apex, base, and body are distinguished, and the incisional margin is inked to determine the extent of tumor involvement. Students are required to practice repeatedly and master the norms and standards.

For film reading diagnosis, a solid theoretical foundation is required for support. According to each system, the diagnostic criteria must be well-understood. At the same time, it also relies heavily on a substantial amount of training in reading for consolidation. It is necessary for students to form a logical thinking mode when handling films. Students should view structures with a low magnification lens, differentiate the abnormalities, and look for differences; view cells at a higher power to observe their morphological characteristics, the distinguishing features of the system of normal cells, and the formation of mass based on the diagnostic criteria; they should also differentiate tumors that look similar, put forward differential diagnosis for different tumors, and identify the different systems of tumor, which require immunohistochemical and molecular detection for diagnosis. Students must be taught to read films with the ability to think, to go deep, and to understand. As pathologists, they should be able to diagnose common diseases and frequently-occurring diseases as well as can put forward ideas and directions for difficult cases, so as to confirm the diagnosis through other detection methods and assist in the treatment of patients ^[9].

6. Systematic curriculum

The success of practical operation comes from solid basic knowledge. According to the standardized training syllabus, basic lectures and professional lectures are carried out according to different systems every month, the courses are set to different levels based on the grades of students, standardized systematic courses are offered, and systematic course teaching and reading are conducted simultaneously. Furthermore, with the development of network information, the lectures on pathological diagnosis have become more comprehensive, and the content of the lectures by national pathology experts has grown abundantly. This resource has helped students learn the essence from expert lectures while taking the systematic courses offered by the department. For example, when teaching about the urinary system, students can gain more knowledge on the topic by joining the lecture held by Professor Wang Chaofu from Hengdao Pathology at the same time. In learning the respiratory system, students can also learn about the pulmonary system from

Professor Zhu Xiongzeng, who is also from Hengdao Pathology. In that way, they can broaden their learning, learn the latest diagnostic criteria, and keep up with the cutting-edge progress of the times.

7. WeChat reading group

The development of the current network environment has promoted the diversity of learning methods. A WeChat reading group has been established. Based on the training requirements of different grades, the medical history and microscopic structure of classic cases at different levels are sent every day. Since its operability and real-time characteristics are strong, students' electronic reading training is strengthened. The students are required to describe the microscopic characteristics, diagnosis, and differential diagnosis, as well as the necessary immunohistochemical and molecular detection methods. The teacher then summarizes and provides feedback to the students. One-to-one guidance is provided for those with weak foundation, in order to strengthen their training and prevent them from falling behind studies. On the one hand, it drives the enthusiasm of students to learn; on the other hand, it allows horizontal comparison among students, so as to discover their own shortcomings. Through continuous accumulation and cyclical review, students' memory and understanding of the diagnosis may be strengthened, thus enabling students to grasp the training content while sorting out their knowledge on systems.

There are different sub-specialties in this professional base. For the weaker systems in the reading group, there are teachers who are able to enhance the reading explanation, so that the students can master the diagnostic criteria as soon as possible and join the cyclical review.

8. Conclusion

In a word, practical training is an important part of post-graduate medical education, and it is also an effective way to train excellent clinical pathologists^[9,10]. The training goal of clinical pathologists is to be able to undertake surgical pathological examination, autopsy, cytopathology, molecular pathological diagnosis, and other work independently as well as to deal with the preliminary diagnosis, differential diagnosis, and immunohistochemical tests of rare cases and difficult cases in clinical practice^[11,12].

Quality feedback is an important part of residential training. The pathology major itself has strong features of professionalism, classification complexity, and concept abstraction^[13]. It encompasses a large amount of learned content and complex diagnostic criteria, requiring the accumulation of experience from reading films. Traditional lecturing is no longer suitable for the learning of modern students^[14]. In this network era and digital era, the professional base needs to use various contemporary modalities to improve the training speed and competency of students. The characteristic quality feedback mode developed by this major includes the different learning levels of different students. Through numerical feedback, the problem is clearly seen. At the same time, students can be taught according to their aptitude and corrected when there are wrong operations; other than that, it is possible to resolve students' misunderstandings and prevent students from falling behind in their studies. Additionally, problems can be solved quickly and effectively, and students are urged to learn in real time and maintain a consistent pace in learning.

The purpose of residential education is not just for national assessment. In exam-oriented learning^[15], it is easy to just focus on theory and talk on paper. The only way to improve the ability of residents, so that they can take part in clinical work and serve the people well is by developing their competence. The work of training residents has a long way to go. As a standardized training base for national pathology physicians, the Department of Pathology in Baoding First Central Hospital ought to conduct its work meticulously, develop professionally, and cultivate excellent residential pathology physicians.

Disclosure statement

The authors declare no conflict of interest.

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