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# Analysis of Application of CBL and PBL Teaching Methods in Clinical Teaching of Breast Surgery

**Xulong Zhu[1,2], Ying Zhang[1], Wei Cao[1], Jianhui Li[1], Binliang Huo[1*]**

**1. Department of Surgical Oncology, Shaanxi Provincial People`s Hospital, Xi'an 710068, China.**

**2. School of Life Science and Technology, Xi'an Jiaotong University, Xi'an 710049, China.**

***Abstract:*** Objective: To analyze the clinical teaching characteristics of breast surgery and discuss the effect and practical value of CBL (Case-Based Learning) and PBL (Problem-Based Learning) teaching methods. Method: According to study, we brought into labelling and exclusion criteria and 100 breast surgery patients admitted to our hospital were selected as research objects from January 2020 to December 2021. Twenty interns who received clinical teaching were selected as the research objects. The two groups of subjects were randomly divided into 10+50 groups. There were 10 interns and 50 patients in the control group and 10 interns and 50 patients in the experimental group. The control group received LBL (Lecture-Based Learning) for teaching, and the interns performed surgical treatment on the patients; The experimental group received CBL+PBL teaching, and the interns performed surgical treatment on the patients. Then compare the effectiveness of patients' treatment, the theoretical scores, practical scores and teaching satisfaction of the two groups of interns. Result: Under different clinical teaching interventions, the treatment efficiency of the experimental group was significantly higher than that of the control group. At the same time, the average scores of interns in the experimental group in theory and practice were higher than those in the control group, and their satisfaction with the teaching content and methods was also significantly higher than that in the control group. Difference between the two groups has statistical significance. ($P<0.05$) Conclusion: Problem-Based Learning and Case-Based Learning clinical teaching methods are effective and have value for promotion.

***Keywords:*** Breast Surgery; Clinical Teaching; PBL; CBL; Theoretical and Practical Knowledge; Satisfaction of Teaching; Response Rate

## Introduction

In breast surgery, patients with various diseases have a high incidence of various diseases and are prone to co-occurrence of multiple diseases. For clinical interns, there are certain difficulties in how to diagnose effectively and make effective strategies. Clinical interns are an important talent pool for the clinical treatment of breast surgery, and the mastery of high-quality theoretical and practical knowledge is the primary purpose of clinical teaching. [1] LBL is a traditional teaching methods. First of all, the teacher should complete the teaching of knowledge, and then the students will carry out clinical practice. Students lack the ability of self-thinking and learning, and the teaching effect is poor. PBL+CBL teaching method has been widely used in recent years. This paper focuses on the effect of this kind of teaching method. The content is as follows.

## 1. Data and Method

## 1.1 General Data

According to study, we brought into labelling and exclusion criteria and 100 breast surgery patients admitted to our hospital were selected as research objects from January 2020 to December 2021. Twenty interns who received clinical teaching were selected as the research objects. The two groups of subjects were randomly divided into 10+50 groups. There were 10 interns and 50 patients in the control group and 10 interns and 50 patients in the experimental group. There was no

statistically significant difference between the general data of patients and interns in the two groups. (P>0.05) Data Comparison: (1) General data of patients: all patients were female, The age range of patients in the experimental group was from 30 to 61 years old, with an average age of (50.2±4.7); The age range of patients in the control group was from 31 to 62 years old, with an average age of (51.0±4.6).（2） General data of interns: In the experimental group, the ratio of male to female was 2/8, and the average age was (24.1±0.8); In the control group, the ratio of male to female was 1/9, and the average age was (24.0±0.7). Both patients and interns agreed to carry out the study.

# 1.2 Method

## 1.2.1 Control group

Interns received received LBL (Lecture-Based Learning) for teaching, mainly in the form of PPT. The tutor first taught the knowledge in the classroom, then led the interns to the ward to inquire the medical history, incorporating patient information to summarize the basis of the diagnosis and make treatment strategies. The tutor summarized and analyzed the problems of the students based on the patient's situation, and judged the treatment strategy and expected treatment efficiency.

## 1.2.2 Experimental group

Interns received received CBL (Case-Based Learning) and PBL (Problem-Based Learning) for teaching. PBL (Problem-Based Learning): After the interns were admitted to the hospital, the relevant content was the same as that of the control group, and then assigned nurses who taught them to take the teaching mode of micro-lectures. First of all, the teacher uses the Wechat APP to record and make micro-videos, and at the same time establish a WeChat group for teachers and students, and share the QR code to the WeChat group. Both teachers and students can watch and learn through mobile phones and computers. Secondly, the teacher will sort out, screen and integrate the learning knowledge points of breast surgery, and ask questions to ensure that the teaching content of the course improves students' grasp of the key points, difficulties and doubts of professional knowledge. For example, the diagnosis, classification and clinical manifestations of breast surgery diseases will allow students to learn knowledge about mastitis, breast fibroadenomas, intraductal papilloma of breast, etc. based on the questions raised. The content of the class should also include the image records of the relevant actual patients, so that students can learn relevant knowledge through the images and deepen the teaching impression. Finally, in addition to logging in to the APP every day to observe students' learning status, teachers should regularly organize students to summarize and share their learning experience offline, and at the same time emphasize students' problems in self-directed learning and guided learning to correct and deepen their knowledge.

CBL (Case-Based Learning): According to the syllabus and teaching objectives, extensive, representative and standard cases are selected, and according to the requirements of the experimental class hours, the department leaders, medical teaching experts and relevant scientific research groups will cooperate to set up simulated scenarios for students to learn in class. After passing the scenario simulation, clinical practice nursing is carried out. The practice clinical treatment is led by the teaching doctor, and the student counseling gradually transitions to student-led and doctor-led. After accepting the results of the case teaching method, students and teachers go to the ward to observe the actual cases, and carry out self-learning solutions and case simulation learning combined with problems. Under the guidance of the teaching physician, the interns analyze the current situation of the patients and make disease diagnosis and treatment strategies. The instructor makes a summary and analysis of the students' problems based on the patient's situation, and at the same time judges the treatment strategy and the expected treatment efficiency.

# 1.3 Observation Target

Response Rate of Treatment: The leading physician judges the patient's expected treatment effectiveness based on the patient's current situation and the student's treatment strategy, including three levels: markedly effective, effective, and ineffective. Response Rate of Treatment = markedly effective, effective.

Theoretical and practical knowledge： Refer to the internship syllabus, observe the interns' theoretical knowledge and

practical knowledge, and score through the theoretical examination and practical examination results. The full score of each subject examination is 100 points.

Satisfaction of teaching: A teaching satisfaction questionnaire is issued to collect students' satisfaction with teaching content and teaching methods, which are divided into satisfaction, general, and dissatisfaction. Teaching satisfaction = satisfaction rate + general rate.

## 1.4 Statistical Method

The data were included in SPSS 23.0 software for analysis, measurement data were compared using t test, and represented by( $\bar{x} \pm s$ ), and rate count data were examined by χ2 test, which was represented by rate (%), (P<0.05) was considered to be significantly different, with statistical significance.

# 2. Result

## 2.1 Response Rate of Treatment

After the implementation of different teaching methods, the effective rate of treatment in the experimental group was higher than that in the control group, and the difference was statistically significant (P<0.05), Data comparison: In the experimental group, 38 cases were markedly effective, 12 cases were effective, 0 cases were ineffective, and the effective rate was 100.0%; In the control group, 28 cases were markedly effective, 16 cases were effective, 6 cases were ineffective, and the effective rate was 88.0%. ($\chi^2=6.383$，$P=0.012$)

## 2.2 Theoretical and practical knowledge

The theoretical and practical knowledge of the experimental group was better than that of the control group, and the difference was statistically significant (P<0.05), Data comparison: Theoretical knowledge of the experimental group was (96.7±1.4) points, theoretical knowledge of the control group was (90.4±3.8) points, (t=4.920, P=0.006). The practical knowledge of the experimental group was (94.2±2.4) points, and the practical knowledge of the control group was (88.9±1.1) points, (t=6.109, P=0.029).

## 2.3 Satisfaction of teaching

The teaching satisfaction of the students in the experimental group was higher than that in the control group, and the difference was statistically significant. (P<0.05), Data comparison: experimental group: 10 cases (100.0%); control group: 6 cases (60.0%). ($\chi^2=5.000$, $P=0.025$)

# 3. Discussion

Breast surgery is a branch of clinical surgery for breast diseases. With the rapid development of society and economy, the pressure on women is increasing, and the incidence of various diseases in breast surgery is increasing.[2] Breast surgery includes breast anatomy, breast tumor cases, breast tumor diagnosis and treatment principles, breast surgery pathological diagnosis, breast tumor surgery and other aspects of knowledge. For clinical interns, the knowledge is complex and the practice is difficult. How to effectively teach the interns is the focus and difficulty of teaching.[3] In the post-epidemic era, the entire medical system has an unprecedented increase in the requirements for talents, which requires interns to quickly complete the transition from students to doctors, and to have rich theoretical knowledge and qualified practical knowledge. PBL+CBL is a commonly used teaching method for clinical teaching in major medical colleges, which is different from the traditional teaching method. It focuses on building cases, asking questions, and guiding students to learn independently and independently in the process of interacting with teachers in small groups. As the depth of learning increases, problems are verified and solved in clinical practice, so as to improve students' theoretical and practical abilities.[4] In this study, under different clinical teaching interventions, the treatment efficiency of patients in the experimental group was significantly higher than that in the control group. At the same time, the average scores of interns in the experimental group were higher

than those in the control group, and their satisfaction with the teaching content and methods was also significantly higher than that in the control group.($P<0.05$)

To sum up, PBL and CBL have changed the single way that clinical interns used textbooks for knowledge acquisition. Thinking about problems and referencing cases can effectively improve students' enthusiasm for learning, and at the same time allow students to truly discover and solve problems, and actually improve their practical ability. And in practice, the theoretical knowledge is continuously integrated and optimized, which is beneficial to the career development of students.

# References

[1] Xie HQ, Duan LH, Research on the application effect of CBL combined with PBL teaching method in breast surgery clinical teaching [J]. Health industry in China, 2021, 18 (27): 4.

[2] Wang W, Zhou J, Mao JY, Application experience of the combined teaching mode of CBL and PBL in breast surgery [J]. Electronic journal of Clinical Medicine literature, 2020,7(3):2.

[3] Shu F, Yan ZL, Chen J, Application of follow-up CBL theory course and PBL practice course teaching method in clinical gynecological oncology [J]. Basic Medicine and Clinical, 2021, 41(2):3.

[4] Cao WG, Yang ZL, Application of PBL-CBL teaching mode based on MOOC in clinical teaching of breast surgery[J]. China Medical Herald, 2020, 17(14):4.